



# Northamptonshire Local Flood Risk Management Strategy

Living Document – Interactive PDF

Northamptonshire County Council

October 2013



## Document Status

All Lead Local Flood Authorities in England are required to develop, maintain, apply and monitor the application of a strategy for local flood risk in their area, which is consistent with the Environment Agency's National Strategy. This is therefore a **statutory** document.

In Northamptonshire, the County Council is the Lead Local Flood Authority.

The Local Flood Risk Management Strategy is an important document that sets out the management of flood risk in Northamptonshire for the coming years.

As part of its development all key partners have had the opportunity to comment on this strategy. Following full public consultation this strategy was reviewed, updated and finalised as a **living document**.

## Accompanying Documents

The Local Flood Risk Management Strategy (LFRMS) is accompanied by a number of separate documents, as follows:

- A non-technical Executive Summary of this strategy has been produced as an easy reference guide;
- The strategy is also subject to Strategic Environmental Assessment and Habitats Regulation Assessment, which have both been produced to support the strategy;
- An Equalities Impact Assessment has also been undertaken; and
- A Communication, Engagement and Consultation Strategy has also been developed to support the LFRMS and related flood and water management work..

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# 1. INTRODUCTION

- 1.1. The Flood and Water Management Act 2010 (the Act) implemented recommendations from Sir Michael Pitt's Review of the 2007 floods in the UK. Under the Act the County Council became a 'Lead Local Flood Authority' (LLFA) and was given a series of new responsibilities to coordinate the management of local flood risk from surface water, ground water and ordinary watercourses.
- 1.2. As LLFA for Northamptonshire, the County Council needs to 'develop, maintain, apply and monitor' a Local Flood Risk Management Strategy. The strategy will focus on local flood risk resulting from surface water, groundwater and ordinary watercourses flooding. The interaction with main river flooding has also been assessed.
- 1.3. The strategy will be the tool through which the LLFA discharges its role to provide leadership and co-ordinate flood risk management on a day to day basis. It will act as the focal point for integrating all flood risk management functions in the county and will have regard to the [Environment Agency's National Flood and Coastal Erosion Risk Management Strategy](#).
- 1.4. The Flood and Water Management Act states that the Local Flood Risk Management Strategy must cover:
  - The risk management authorities in the area;
  - The flood risk management functions that may be exercised by those authorities;
  - The objectives for managing local flood risk;
  - The measures proposed to achieve those objectives;
  - How and when the measures are expected to be implemented;
  - The costs and benefits of those measures, and how they may be paid for;
  - The assessment of local flood risk;
  - How and when the strategy is to be reviewed; and
  - How the strategy contributes to the achievement of wider environmental objectives.

Figure 1-1: What the Strategy Includes



- 1.5. The strategy must be consistent with the [Environment Agency's National Flood Risk Management Strategy](#), which was published in September 2011.
- 1.6. The County Council has taken resource and organisational decisions to prepare for its new statutory responsibilities and role as a LLFA. This strategy sets out a policy approach as well as an action plan and implementation process.

### *Objectives of the Local Flood Risk Management Strategy*

- 1.7. The overarching aim of this Strategy is to provide a robust local framework that employs a full range of complementary approaches towards managing and communicating the risks and consequences of flooding arising from surface runoff, groundwater and ordinary watercourses in Northamptonshire and the surrounding area.
- 1.8. The objectives by which the County Council will achieve this vision are set out below and actions and measures that have been developed to achieve these objectives are set out in [Section 7](#) of this Strategy:

#### **Local Flood Risk Management Strategy Objectives**

1. **Collaborative Approach** – Adopt a collaborative approach to managing local flood risk by working with local partners and stakeholders to identify, secure and optimise resources, expertise and opportunities for reducing flood risk and increasing resilience to flooding;
2. **Local Flood Risk** – Develop a greater understanding of local flood risk by improving the scope of local knowledge and understanding of current and future local flood risks;
3. **Enhance the Natural and Historic Environment** – Adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits and promote the wellbeing of local people;
4. **Preparedness and Resilience** – Reduce the harmful consequences of local flooding to communities and human health through proactive actions, activities and education programmes that enhance preparedness and resilience to local flood risk, and contribute to minimising community disruption;
5. **Flood Risk and Development** – Minimise the increase in local flood risk that may arise from new development by producing guidance, setting standards, promoting the sustainable use of water and supporting the development of local policies and guidance, discouraging wherever possible surface water runoff in new and future developments and where possible influencing or supporting developments that seek to reduce existing flood risk;
6. **Economically Sustainable Approach** – Ensure the financial viability of flood related schemes through the development of appropriate policies and assessment tools to ensure that flood risk management measures provide value for money whilst minimising the long-term revenue costs. Seeking to use natural processes where possible or source the costs of any maintenance from the financial beneficiaries of the development;
7. **Riparian Responsibilities** – Encourage flood management activities by private owners of ordinary watercourses and flood defence structures as well as limit the development of constrictions on ordinary watercourses.

## *Local Flood Risk Management Actions and Measures*

- 1.9. The [Action Plan](#) for delivering the above objectives contains a mix of long-standing, on-going high-level actions and short-term, time bound site specific activities that are driven by partnership working and the principle of sustainable development. The integrated approach to delivering the broad aim of this Strategy means that although specific actions and measures have been proposed to promote the achievement of particular objectives, some actions will inevitably help to achieve more than one objective. A detailed explanation of how each of the objectives will be met is provided in [Section 7](#) of this Strategy, with the Action Plan provided in [Section 8](#).

## 2. WHAT IS FLOODING?

- 2.1. There are few places in the United Kingdom where people need not be concerned about flooding. Any place where rain falls is vulnerable, although rain is not the only impetus for flood.
- 2.2. Flooding is determined by factors in the surrounding landscape, such as steepness of the land, the amount of vegetation and geology.
- 2.3. A flood occurs when water overflows or inundates land that is normally dry. This can happen in a multitude of ways as set out below.
- 2.4. Many floods take hours or even days to develop, giving residents ample time to prepare or evacuate. Others generate quickly and with little warning. These flash floods can be extremely dangerous, instantly turning a babbling brook into a raging torrent.
- 2.5. But flooding, particularly in river floodplains, is a natural process that has been occurring for millions of years.

### *What causes flooding?*

- 2.6. **Weather events:** Flooding is normally caused by natural weather events such as:
  - Heavy rainfall and thunderstorms over a short period;
  - Prolonged, extensive rainfall;
  - Snow melt; or
  - High tide combined with stormy conditions.
- 2.7. It is predicted that the impacts of climate change on the weather will increase the risk of flooding in the UK and other parts of the world. The following factors can also cause or contribute to flooding:
- 2.8. **Poor maintenance:**
  - Faulty sewer networks;
  - Poor or insufficient drainage networks; and
  - Inadequate maintenance of watercourses.
- 2.9. **Development and planning issues:**
  - Inappropriate development in floodplains;
  - Building on land in a way that prevents rainfall from draining away naturally. This includes roads and car parks that are impermeable to water. They can increase the risk of flooding from rainwater runoff;
  - Flood defence schemes that are defective or badly designed.

### *What is the Likelihood of Flooding?*

- 2.10. The probability or likelihood of flooding is described as the chance that a location will flood in any one year. For example, if a location is described as having a 1.3% chance of flooding, this can also be expressed as:
  - A 1 in 75 chance of flooding in that location in any one year; or
  - Odds of 74 to 1 against that location being flooded in any one year.
- 2.11. However, this does not mean that if a location floods in one year, it will definitely not flood for the next 74 years. Nor does it mean that if it has not flooded for 74 years, it will necessarily flood in the following year.
- 2.12. The chance of flooding can be put into one of three categories:
  - Significant: the chance of flooding in any year is greater than 1.3% (1 in 75);

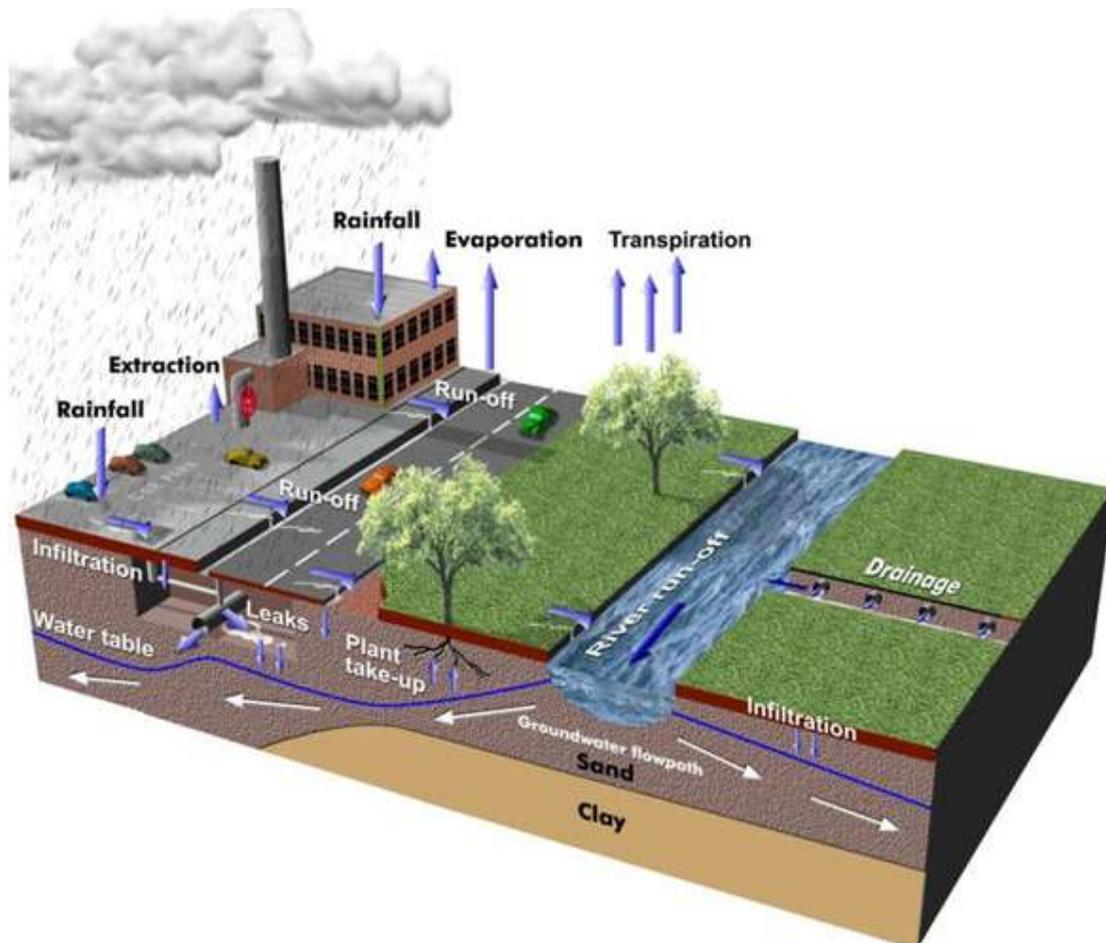
- Moderate: the chance of flooding in any year is 1.3% (1 in 75) or less, but greater than 0.5% (1 in 200);
- Low: the chance of flooding in any year is 0.5% (1 in 200) or less.

2.13. The lower the percentage then the less chance there is of flooding in any one year; the higher the percentage then the more chance there is of flooding in any one year

### *What types of flood risk are there?*

2.14. The definition of 'risk' is the combination of the probability (likelihood or chance) of an event happening and the consequences (impact) if it occurred. There are numerous different sources of risk, as summarised below. Figure 2-1 below shows the various interactions between these sources of risk.

**Figure 2-1: Sources of Flood Risk<sup>1</sup>**



2.15. **Surface water flooding**, also known as pluvial flooding, occurs when high intensity rainfall generates runoff which flows over the surface of the ground and ponds in low lying areas. It is usually associated with high intensity rainfall events (typically greater than 30 millimetres per hour) and can be exacerbated when the ground is saturated or when the drainage network has insufficient capacity to cope with the additional flow.

2.16. Flooding occurs as a result of the rainfall that does not soak into the land or enter a drain or river, but flows over it instead. Runoff does not necessarily cause a problem if it flows straight into drains or watercourses, or on to land where it can quickly soak away. However in some cases runoff flows onto the road (which can then freeze and create a

<sup>1</sup> <http://www.bgs.ac.uk/news/result.cfm?action=category&userTxt=&code=UPDATES&year=2012&month=7&page=13> (visited 25/07/2012)

danger to road users), or into people's homes or onto their land where it can cause damage and disruption. Runoff may also pass into small ditches or channels that run through or adjacent to property, and if not maintained these flow routes can become blocked.

- 2.17. Surface runoff flooding can also originate from farmland. This is a particular risk where soil has been compacted or vegetation removed, either seasonally by ploughing or temporarily as topsoil is stripped to allow for development, so that rainwater is no longer able to quickly soak into the ground. Instead the rainwater flows over the land, carrying soil with it to create a "muddy flood". The farmland itself can be damaged because the floodwater can carry away topsoil and even crops.
- 2.18. Until recently, the risk from surface water was poorly understood, with little information available about the mechanisms of surface water flooding and the associated risks. Northamptonshire has nearly 60,700 residential properties predicted to be affected by shallow surface water flooding (deeper than 0.1 metre) during an extreme rainfall event with an annual exceedance probability of 0.5% (1 in 200)<sup>2</sup>.
- 2.19. Surface water management in England has historically been disjointed, un-coordinated and lacking a clear articulation of roles and responsibilities across local, regional and national levels of public service administration, particularly the absence of a single organisation having overall responsibility for surface water management. This failing has since been addressed by the Act which outlines various roles and responsibilities for Lead Local Flood Authorities, Flood Risk Management Authorities and other stakeholders, as well defining what riparian owners, the public and businesses can do to support to local flood risk management.
- 2.20. **Groundwater flooding** occurs when water levels in the ground rise above the ground surface. Flooding of this type tends to occur after long periods of sustained heavy rainfall and can last for weeks or even months. The areas at most risk are often low-lying areas where the water table is more likely to be at a shallow depth and flooding can be experienced through water rising up from the underlying aquifer or from water flowing from springs. Flooding from groundwater is most common in areas where the underlying bed rock is chalk, but it can also happen in locations with sand and gravel in the river valleys.
- 2.21. The main causes and impacts of groundwater flooding include:
- Rise of typically high groundwater levels to extreme levels in response to prolonged intense rainfall;
  - Rising groundwater levels in response to reduced groundwater abstraction in an urban area (termed groundwater rebound) or a mining area (termed mine water rebound);
  - Subsidence of the ground surface below the current groundwater level;
  - Rise of groundwater levels due to leaking sewers, drains and water supply mains;
  - Faulty borehole headworks or casings causing upward leakage of groundwater driven by high pressure underground;
  - Increases in groundwater levels and changed flow paths due to artificial obstructions or pathways, and loss of natural storage and drainage paths.
- 2.22. **River flooding**, also known as fluvial flooding, occurs when a watercourse cannot accommodate the volume of water that is flowing into it. Rivers are categorised into main rivers and ordinary watercourses. Main rivers are usually large watercourses but also include smaller watercourses of strategic drainage importance. Smaller watercourses,

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<sup>2</sup> [Northamptonshire Preliminary Flood Risk Assessment \(2011\)](#)

ditches and streams are classified as ordinary watercourses. Ordinary watercourses in Northamptonshire are those not defined as main rivers. The main rivers have been identified on [Map 1](#) and [Map 2](#) below. Northamptonshire has a number of large main rivers and associated tributaries, which all present some degree of flood risk in addition to the vast network of ordinary watercourses. Northamptonshire has nearly 7000 residential properties predicted to be affected by fluvial flood risk.

- 2.23. **Reservoir flooding** results from the complete or partial failure of a reservoir structure. It may be caused by erosion due to seepage, overtopping of the dam beyond its design level or through accidental damage to the structure. It must be noted that reservoir failure is extremely rare.
- 2.24. Canals are generally designed to enable them to cope with flood waters. These artificial watercourses rarely flood because they contain water control locks. Most canals have overflow sluices that run off into small rivers and streams. High intensity rainfall however can cause **canal flooding** when draining canals do not have the necessary capacity to drain away the amount of falling rain.
- 2.25. **Sewer flooding** occurs when the sewer network cannot cope with the volume of water that is entering it or when pipes within the network become blocked. This type of flooding is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding.
- 2.26. **Highway flooding** can be defined as flooding caused by heavy rainfall or overflowing from blocked drains and gullies causing water to pond within the highway network.
- 2.27. **Snowmelt** can cause significant flooding. Unlike rainfall, which reaches the soil almost immediately, snow stores the water for some time until it melts, delaying the arrival of water at the soil for days or weeks. Long periods of snow also mean that the water is stored and accumulates, so the melt results in a significant volume of runoff in a short space of time. Snowmelt flooding can be exacerbated where the ground remains frozen during the snowmelt as this significantly reduces the permeability of the ground. The "average" snow to liquid ratio is 10:1, e.g. 10 cm of snowfall would produce an equivalent volume of runoff once melted as 1 cm of rainfall.
- 2.28. **Drought related flooding** occurs if the soil becomes very dry, which can then lead to increased surface water flooding. Often flood alerts are issued in times of drought relating to flash flooding. A combination of heavy rainfall and poor drainage can also cause rivers to rise quickly and overflow.
- 2.29. For information about droughts in the UK, maps of where water usage restrictions may apply, and what you can do to reduce your water usage, or to report any environmental consequences relating to drought, see the [Environment Agency's web pages on Drought](#).

### *Flood Risk in Northamptonshire*

- 2.30. The nature of flood risk within Northamptonshire is extremely varied and widespread across the county. Northamptonshire has an extensive network of rivers and canals, combined with a large number of towns and extremely rural surroundings. This means that Northamptonshire is therefore at risk of flooding from a range of different sources.

### *Watercourses in West Northamptonshire*

- 2.31. The main rivers within West Northamptonshire drain from west to east with the exception of the River Cherwell, which flows from north to south. The River Nene, River Great Ouse (including River Tove), River Cherwell and their tributaries all rise within West Northamptonshire. The upper reaches of these catchments are classed as being 'flashy'

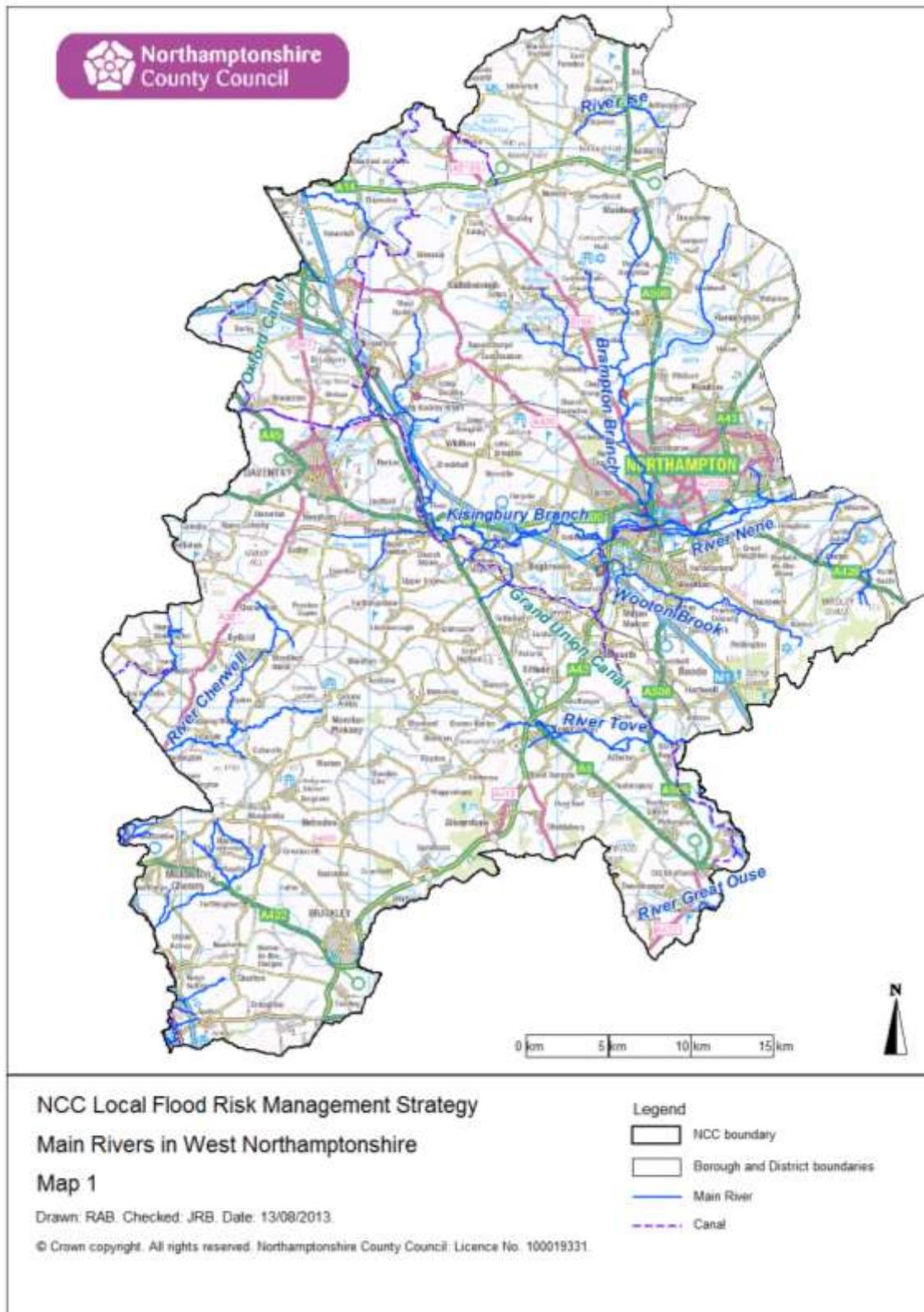
due to the underlying hard rock geology, leading to relatively short catchment response times. In addition to the above watercourses there are also interactions with the Grand Union Canal (*with River Nene*) and the Oxford Canal (*with River Cherwell*). A map of the main rivers within West Northamptonshire is provided below in [Map 1](#).

- 2.32. The catchment of the River Nene covers the majority of Daventry District and the Borough of Northampton. The River Nene rises on the mainly clay soils of the Northampton Uplands at sources near Badby, Naseby and Yelvertoft and then crosses the gently undulating rural land to the flat plains of Peterborough. From here, the Nene is embanked across the low-lying land of the Fens, in its course to The Wash. Upstream of Peterborough, the principal tributaries of the River Nene are:
- Wootton Brook;
  - The Kislingbury Branch; and
  - The Brampton Branch.
- 2.33. Northampton lies at the confluence of the River Nene's main upper tributaries, which include the Kislingbury Branch, the Brampton Branch and Wootton Brook. Through Northampton, the river is defended and the Northampton Washlands and Upton flood attenuation area compensate for the effect of upstream development on flow downstream. The Washlands consist of an area of former gravel workings into which floodwaters are diverted and stored for controlled release when required.
- 2.34. The Great Ouse river system starts in Northamptonshire (near Brackley), passing through Buckingham, Newport Pagnell, Bedford, St Neots, St Ives and Earith before crossing the Fens and flowing into The Wash. The River Tove and other tributaries of the Great Ouse in Northamptonshire such as Silverstone Brook and Wood Burcote Brook are also important watercourses in West Northamptonshire.
- 2.35. The River Cherwell rises at Hellidon to the south east of Daventry, flowing in a southerly direction through parts of Daventry District and South Northamptonshire.

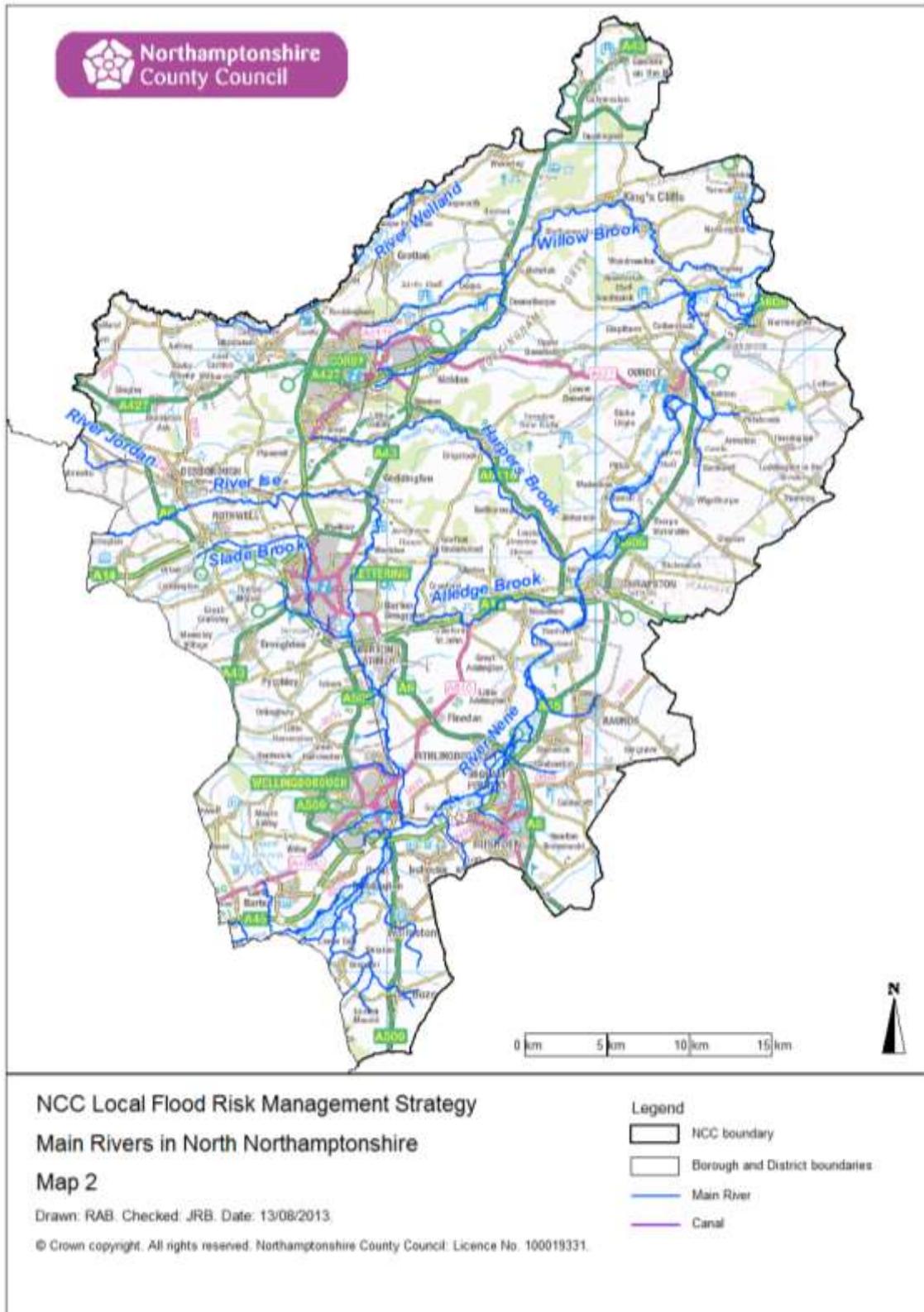
### Watercourses in North Northamptonshire

- 2.36. The vast majority of North Northamptonshire is located within the River Nene catchment. The northern extents fall within the River Welland catchment and the south eastern extent is located within the Great Ouse catchment.
- 2.37. The principal watercourses in North Northamptonshire are:
- The River Nene and its main tributaries, the River Ise, Harpers Brook, Alledge Brook, Slade Brook and Willow Brook; and
  - The River Welland and its main tributary the River Jordan.
- 2.38. A map of the main rivers within North Northamptonshire is provided below in [Map 2](#).

Map 1: Main Rivers in West Northamptonshire



Map 2: Main Rivers in North Northamptonshire



### 3. LEGISLATIVE BACKGROUND

#### *Flood and Water Management Act 2010*

- 3.1. The [Flood and Water Management Act](#) received Royal Assent in April 2010. It revises, modernises and consolidates significant elements of existing legislation covering flooding, land drainage, coastal erosion and reservoir safety. It also strengthens and extends existing flood and water legislation including implementing appropriate recommendations from the [Pitt Review into the floods of 2007](#).
- 3.2. The key provisions of the Flood and Water Management Act 2010 include:
- **New statutory responsibilities for managing flood risk** – There are national strategies and guidance on managing flood risk in England and Wales. Unitary and county councils bring together the relevant bodies to develop local strategies for managing local flood risk;
  - **Protection of assets which help manage flood risk** – The Environment Agency, local authorities and internal drainage boards are able to ensure that private assets which help manage the risks of floods cannot be altered without consent;
  - **Sustainable drainage** – drainage systems for all new developments will need to be in line with new National Standards to help manage and reduce the flow of surface water;
  - **Powers to carry out environmental works** – the Environment Agency, local authorities and internal drainage boards are able to manage water levels to deliver leisure, habitat and other environmental benefits;
  - **Reservoir safety** – the public will be protected by a new risk-based regime for reservoir safety. It will reduce the burden on regulated reservoirs where people are not at risk, but introduce regulation for some potentially higher-risk reservoirs currently outside of the system;
  - **Transfer of private sewers** – on 1<sup>st</sup> October 2011, water and sewerage companies in England and Wales became responsible for private sewers, which were previously the responsibility of property owners. Not all private sewers and lateral drains were included, for example property owners remain responsible for the sections of pipe between their property and the transferred private sewer or lateral drain. No new private sewers will be created after the completion of the private sewer transfer.
  - **New sewer standards** – all sewers will be built to agreed standards in future so that they are adopted and maintained by the relevant sewerage company;
  - **Water company charges** – protection can be offered against unaffordable charges for surface water drainage for community groups such as churches. Social tariffs can be provided for those who would otherwise face difficulty meeting their bills;
  - **Protection of water supplies** – wider powers have been provided for water companies to control non-essential domestic uses of water in times of drought;
  - **Other protection for water company customers** – new powers have been provided to reduce the level of debt, new arrangements are in place for managing very risky infrastructure projects which could be a threat to the ability of the water company to provide its services, and updated arrangements have been provided for administration of water companies should they get into difficulties.

- 3.3. The Flood and Water Management Act 2010 (the Act) creates clearer roles and responsibilities, which include the new role of 'Lead Local Flood Authority' (LLFA) for county councils and unitary authorities in managing local flood risk (from surface water, ground water and ordinary watercourses) and a strategic overview role for all flood risk for the Environment Agency, which retains responsibility for main river (fluvial) flooding.
- 3.4. The Act requires the Environment Agency to 'develop, maintain, apply and monitor a strategy for flood and coastal erosion risk management in England'. The [Environment Agency's National Flood and Coastal Erosion Risk Management Strategy](#) was published in September 2011. The strategy describes at a high level what needs to be done by all organisations involved in flood and coastal erosion risk management. These include local authorities, internal drainage boards, water and sewerage companies, highways authorities, and the Environment Agency.
- 3.5. The National strategy sets out a statutory framework to help communities, the public sector and other organisations to work together to manage flood and coastal erosion risk. It supports local decision-making and engagement in flood risk management, making sure that risks are managed in a co-ordinated way across catchments. This includes the development of local flood risk management strategies by LLFAs, as well as the Environment Agency's strategic overview of all sources of flooding and coastal erosion.
- 3.6. In carrying out its new role as the LLFA, the County Council's key duties and responsibilities, once all elements of the Flood and Water Management Act (2010) have been enacted will include:
- To develop, maintain and apply in consultation with key stakeholders a Local Flood Risk Management Strategy for Northamptonshire (this document), which should include risks from surface water run-off, groundwater and ordinary watercourses i.e. those watercourses which are not the responsibility of the Environment Agency;
  - To establish local management and governance arrangements with other key stakeholders to ensure delivery of effective joined up management of flood risk;
  - To fulfil the requirements of the [EU Floods Directive](#) in relation to sources of flood risk by completing preliminary flood risk assessments, the identification of Flood Risk Areas and preparing Surface Water Management Plans for areas of greatest risk (Northampton);
  - To approve, adopt and maintain Sustainable Drainage Systems (SuDS) that meet national standards for development (yet to be commenced);
  - To establish and maintain a register of flood risk management assets with a record of each structure, together with details of ownership and state of repair, where known, and where appropriate designate such structures/ features which may affect flood risk so they cannot be altered without consent. Assets can be designated by the LLFA, district councils and the Environment Agency;
  - To investigate flooding incidents to understand their cause and ensure that appropriate agencies play their role in the effective management of flooding incidents and recovery;
  - A power to undertake works to manage flood risk from surface water run-off and groundwater. District councils and Internal Drainage Boards retain their responsibility to undertake works on ordinary water courses (under [Land Drainage Act 1991](#)); and
  - To plan for the emergency management of flooding as a key partner of the Local Resilience Forum (LRF).

### *Flood Risk Regulations 2009*

- 3.7. The [Flood Risk Regulations \(2009\)](#) incorporate the requirements of the European Floods Directive into national law in England and Wales. As with most European Union law, the

Directive was written for the benefit of many different countries. The Flood Risk Regulations are concerned with identifying and taking action in relation to areas with the most significant flood risks across the country. The first stage of implementing the Flood Risk Regulations, the Preliminary Flood Risk Assessment, was undertaken by the County Council in June 2011 and has supported the preparation of this Strategy.

3.8. The Regulations:

- Give responsibility to the Environment Agency to prepare Preliminary Flood Risk Assessments, flood risk maps, hazard maps and flood risk management plans for flood risk from the sea, main rivers and reservoirs;
- Give responsibility to LLFAs to do the same for all other forms of flooding (excluding sewer flooding), including surface runoff, groundwater and ordinary watercourses; and
- Require areas of nationally significant risk to be identified, and flood risk maps, hazard maps and management plans to be produced for those areas.

3.9. The Environment Agency supplied the core national datasets to undertake this work and guidance was provided on how to identify areas of nationally significant flood risk affecting more than 30,000 people in a 5km<sup>2</sup> area.

3.10. All of the documents under the Regulations are to be reviewed and if necessary updated every 6 years. Therefore the second set of preliminary assessment reports will be published in 2017.

3.11. The Preliminary Flood Risk Assessment was taken to the County Council's Customers and Communities Scrutiny Committee on 16 February 2011 and to Cabinet on 10 May 2011 for approval. The councillors approved the Preliminary Flood Risk Assessment for formal submission to the Environment Agency. This report showed that no areas in Northamptonshire met the significant flood risk criteria as set out by the Flood Risk Regulations 2009.

3.12. The County Council was informed on 18 August 2011 that the national review stage of the Northamptonshire Preliminary Flood Risk Assessment had been completed. The review confirmed that the assessment was compliant with the requirements of the Flood Risk Regulations and comprehensively covered the additional more discretionary aspects of the Environment Agency's guidance.

3.13. Under the Regulations, some LLFAs need to produce flood hazard and risk maps and Flood Risk Management Plans (FRMPs) for the 10 Flood Risk Areas in England and 8 in Wales, by December 2015. As Northamptonshire is not within one of these Flood Risk Areas, there is no requirement to produce a FRMP or hazard and risk maps. The Environment Agency and Natural Resources Wales need to prepare flood hazard and risk maps and FRMPs for main rivers, the sea and reservoirs covering the whole of England and Wales.

3.14. FRMPs set out how risk management authorities and communities will work together to reduce the potential adverse consequences of flooding. The Environment Agency will work in partnership with LLFAs and other risk management authorities to develop these plans at a catchment scale by pooling information from various plans such as Catchment Flood Management Plans and Reservoir Plans. The Environment Agency will work with LLFAs to pool information from LFRM Strategies and this information on local flood risk management will be set within the context of the broader catchment plan.

3.15. As part of the Environment Agency's strategic overview of all sources of flood risk, they have shared two national surface water maps with LLFAs – Areas Susceptible to Surface Water Flooding and Flood Map for Surface Water. These maps do not fully meet the

requirements of the Regulations. Therefore the Environment Agency are producing a single surface water flood map for all of England and Wales. This will benefit all LLFAs by allowing them to focus on managing surface water flood risk, and will enable the public to better understand how the risk of surface water flooding may affect them.

### *The Pitt Review 2007*

- 3.16. Following the 2007 severe flood events an independent review of the flood-related emergencies that occurred was undertaken by Sir Michael Pitt on behalf of the Government. The final published report entitled "[Learning Lessons from the 2007 Floods](#)" called for urgent and fundamental changes in the way the country was adapting to the likelihood of more frequent and intense periods of heavy rainfall.
- 3.17. The report included 92 recommendations, of which 21 were specifically referred to local authorities. Of particular importance was the recommendation that local authorities should play a major role in the management of local flood risk, taking the lead in tackling local problems of flooding and co-ordinating all relevant agencies. The Act puts in place the recommendations by Sir Michael Pitt.

### *Reservoirs Act 1975*

- 3.18. Responsibility for the management and supervision of reservoirs in England and Wales is regulated by the [Reservoirs Act 1975](#). The Reservoirs Act applies to all reservoirs termed as 'large raised reservoirs', i.e. those that hold a volume of water of above 25,000 cubic metres.
- 3.19. The Flood and Water Management Act (F&WM Act) amends the Reservoirs Act by introducing new arrangements for reservoir safety, based on risk rather than the size of the reservoir, and crucially reduces the definition of large raised reservoir to those with a volume above 10,000 cubic metres.
- 3.20. The key changes as a result of the F&WM Act include:
- Large raised reservoirs that are assessed as 'high risk' will be subject to full regulation;
  - Large raised reservoirs that are not assessed as 'high risk' will need to be registered but will not be subject to full regulation;
  - All incidents at reservoirs will need to be reported;
  - All reservoirs that hold more than 10,000 cubic metres of water may be registered in the future;
  - If registered, some reservoirs that hold more than 10,000 cubic metres that are assessed as 'high risk' will be subject to full regulation.
- 3.21. A reservoir is designated as 'high risk' if the Environment Agency considers that "human life could be endangered in the event of an uncontrolled release of water from the reservoir and the reservoir does not satisfy certain conditions".
- 3.22. Full legislation includes appointing a qualified (panel) civil engineer to supervise the design and construction of the reservoir, continually supervise the reservoir once built, carry out an inspection every ten years, and supervise and certify any recommended measures to be taken in the interests of safety.
- 3.23. Reservoirs that hold less than 25,000 cubic metres of water are subject to safety regulations managed by the Health and Safety Executive and local authorities.

### *Onsite and Offsite Reservoir Emergency Plans*

- 3.24. Onsite reservoir flood plans are produced by the reservoir owners or operators. The plan should include details of how the owner or operator will prevent the dam from failing in an

emergency and how they will contain and reduce the effects of the failure. Although owners and operators are not currently required by law to produce an onsite plan, it is good practice for all reservoirs to have an onsite plan and they will be mandatory by December 2013.

- 3.25. Offsite plans are produced by the Local Resilience Forum (LRF). Offsite plans set out what the emergency services will do to warn and protect people and property downstream in the event of an incident which could lead to dam or reservoir failure. Local authorities are responsible for coordinating offsite plans for reservoir flooding and ensuring communities are well prepared. Local authorities will work with other members of the LRF to produce these plans.

### Reservoir Flood Mapping

- 3.26. The Environment Agency has produced flood maps to show the impact that a dam or reservoir failure and an uncontrolled release of water could have downstream. The outline extent of flooding is shown on the Environment Agency's online mapping, but the detailed maps are only available to upper-tier local authorities, reservoir owners and operators, and emergency responders. These detailed maps are used to develop the offsite plans within the LRFs.

### Reservoirs in Northamptonshire

- 3.27. There are a total of 39 reservoirs with a volume over 25,000 cubic metres in Northamptonshire. There are currently no reservoirs within the county which are classed as 'high risk'.

### *Other key pieces of legislation and guidance*

- 3.28. The [National Planning Policy Framework \(March 2012\)](#) outlines the core planning principles taking flood risk management into consideration and highlights the need for the effective planning for flood risk infrastructure. The framework emphasises that flood risk should be included in the environmental assessment of development and that pre-application engagement and front-loading is essential for developers to understand what is required of them in relation to flood risk assessment, mitigation and water management. The framework also includes objectives to minimise the vulnerability to climate change and to manage the risk of flooding. The Technical Guidance to the Framework provides additional advice to local planning authorities to ensure the effective implementation of planning policy on development in areas at risk of flooding.
- 3.29. The framework retains the key elements of [Planning Policy Statement 25: Development and Flood Risk \(March 2010\)](#) and the associated Practice Guide (December 2009). The intention of this guidance is to act as an interim measure pending a wider review of guidance to support planning policy. The extant companion guide to PPS25 also provides advice and guidance on development and flood risk.
- 3.30. The [Localism Act \(2011\)](#) requires Lead Local Flood authorities (LLFAs) to make arrangements for overview and scrutiny committees to review and scrutinise risk management authorities. Risk management authorities are now under a duty to comply with a request made by an overview and scrutiny committee for information or a response to a report in relation to its flood or coastal erosion risk management functions.
- 3.31. Local authorities, the Environment Agency and other prescribed bodies are obliged to work together on certain strategic matters under the 'duty to cooperate' in the Localism Act in England. In particular, these organisations should cooperate across boundaries because flood risk often requires wider than local consideration.

- 3.32. The Government published the [Water White Paper in 2011](#) to highlight that water is essential for economic growth and that the environment should be protected for future generations. It also:
- Outlines plans to modernise the rules which govern how we take water from our rivers;
  - Explains how we will improve the condition of our rivers by encouraging local organisations to improve water quality and make sure we are extracting water from our environment in the least harmful way;
  - Announces plans to reform the water industry and deregulate water markets to drive economic growth; and
  - Enables business and public sector customers to negotiate better services from suppliers and cut their costs.
- 3.33. The [Conservation of Habitats and Species Regulations \(2010\)](#) transpose the Habitats Directive into UK law. The regulations aim to help maintain and enhance biodiversity throughout the EU, by conserving natural habitats. The main way it does this is by establishing a coherent network of protected areas and strict protection measures for particularly rare and threatened species.
- 3.34. The [Climate Change Act \(2008\)](#) requires a UK-wide climate change risk assessment every five years, accompanied by a national adaptation programme that is also reviewed every five years. The Act has given the Government powers to require public bodies and statutory organisations such as water companies to report on how they are adapting to climate change.
- 3.35. [Making Space for Water \(July 2004\)](#) states that the Government will, over the 20-year lifetime of the strategy, implement a more holistic approach to managing flood and coastal erosion risks in England. The approach involves taking account of all sources of flooding, embedding flood and coastal risk management across a range of Government policies. The aim is to manage risks by employing integrated approaches which reflect both national and local priorities, so as to reduce the threat to people and their property and deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.
- 3.36. The [Civil Contingencies Act \(2004\)](#) aims to deliver a single framework for civil protection in the UK and sets out the actions that need to be taken in the event of a flood. The Act is separated into two substantive parts: local arrangements for civil protection (Part 1) and emergency powers (Part 2).
- 3.37. Responsibilities under part 1 of the Civil Contingencies Act include:
- Undertake risk assessments;
  - Develop Emergency Plans;
  - Develop Business Continuity Plans;
  - Arrange to make information available to the public about civil protection matters and maintain arrangements to warn, inform and advise the public in the event of an emergency;
  - Share information with other local responders to enable greater co-ordination;
  - Co-operate with other local responders to enhance co-ordination and efficiency; and
  - Provide advice and assistance to businesses and voluntary organisations about business continuity management.
- 3.38. The [Strategic Environmental Assessment \(SEA\) Directive \(2001\)](#) (EC Directive 2001/42/EC) is legislation which aims to increase the consideration of environmental issues during decision making related to strategic documents. The SEA identifies any

significant environmental effects that are likely to result due to the implementation of a plan, programme or strategy.

3.39. The [Water Framework Directive \(2000\)](#) (WFD) is the most substantial piece of EC water legislation to date and is designed to improve and integrate the way water bodies are managed throughout Europe. It came into force on 22 December 2000 and was transposed into UK law in 2003. Member States must aim to reach “good” chemical and ecological status in inland and coastal waters by 2015. It is designed to:

- Prevent deterioration of aquatic ecosystems, protect them and improve the ecological condition of waters;
- Aim to achieve at least good status for all waters. Where this is not possible, good status should be achieved by 2021 or 2027;
- Promote sustainable use of water as a natural resource;
- Conserve habitats and species that depend directly on water;
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants, and;
- Contribute to mitigating the effects of floods and droughts.

3.40. To address this, the Environment Agency is the coordinating authority and has produced river basin management plans to develop new and better ways of protecting and improving the water environment.

3.41. The [Land Drainage Act \(1991\)](#) outlines the duties and powers to manage land drainage for a number of bodies including the Environment Agency, Internal Drainage Boards, local authorities, navigation authorities and riparian owners. The Act has updated many parts of this legislation.

3.42. The powers and duties under this act can be summarised as:

- Duty on drainage board to exercise a general supervision over all matters relating to drainage of land;
- A general duty to the environment when exercising powers;
- Powers to maintain, improve and build new works required for drainage;
- Consenting and enforcement powers for ordinary watercourse;
- Powers to make byelaws; and
- General powers of entry onto land for water level management so that statutory authorities can exercise flood risk management for the common good.

## 4. ROLES AND RESPONSIBILITIES

- 4.1. Numerous organisations, agencies, authorities and individuals have roles and responsibilities relating to flood risk management. This section sets out what these roles and responsibilities are for each of the different organisations agencies and authorities.
- 4.2. Part 1, Section 6 (13) of the Flood and Water Management Act defines the following as flood risk management authorities:
  - The Environment Agency;
  - A Lead Local Flood Authority;
  - A District Council for an area for which there is no unitary authority;
  - An Internal Drainage Board;
  - A Water Company; and
  - A Highway Authority.
- 4.3. Under Section 13(4) of the Act, a risk management authority can arrange for a flood risk management function to be exercised on it's behalf by another risk management authority. A flood risk management function is defined in the Land Drainage Act 1991 as including anything done to maintain, operate, improve, alter or remove existing works, to construct or repair new works, to maintain or restore natural processes, to monitor, investigate or survey a location or natural process, or to increase or reduce the level of water.

### *Lead Local Flood Authority*

- 4.4. The County Council is a Lead Local Flood Authority (LLFA) and as such is now responsible for the management of flood risk from surface runoff, ordinary watercourses and groundwater.
- 4.5. The following table sets out all of the functions that the County Council can exercise under the Flood and Water Management Act (2010) and the Flood Risk Regulations (2009). The table outlines whether or not these functions are a duty or a power, the national and local deadlines that are in place (if any) and how far along the County Council is to achieving these deadlines. For each function, a reference point for further information within this Strategy is provided.
- 4.6. The County Council's preferred approach is to work in partnership with all relevant stakeholders and flood risk management authorities, in order to deliver the objectives of this Strategy.

**Table 4.1:NCC Flood Risk Management Functions**

Function	Legislation	Explanation	Duty or Power	National Deadline	NCC Deadline	Strategy Reference Point
Local Flood Risk Management Strategy	Flood & Water Management Act (2010)	<p>Develop, maintain, apply and monitor a strategy for local flood risk management of the area for surface runoff, groundwater and ordinary watercourses.</p> <p>The strategy must specify:</p> <ul style="list-style-type: none"> <li>• The risk management authorities in the authority's area;</li> <li>• The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area;</li> <li>• The objectives for managing local flood risk;</li> <li>• The measures proposed to achieve those objectives;</li> <li>• How and when the measures are expected to be implemented;</li> <li>• The costs and benefits of those measures, and how they are to be paid for;</li> <li>• The assessment of local flood risk for the purpose of the strategy;</li> <li>• How and when the strategy is to be reviewed; and</li> <li>• How the strategy contributes to the achievement of wider environmental objectives.</li> </ul> <p>The strategy must be consistent with the Environment Agency's <a href="#">National Flood &amp; Coastal Erosion Risk Management Strategy</a>.</p> <p>The LLFA must consult all affected risk management authorities and the public about the strategy, and produce a summary of the strategy.</p>	Duty	Not set	End 2013	This document
Co-operation and joint working arrangements	Flood & Water Management Act (2010)	<p>Authorities must co-operate with each other in exercising functions. Authorities can also delegate functions to each other by local agreement.</p>	Duty	Ongoing	Ongoing	<a href="#">Section 7 - Strategy Objectives</a>

Function	Legislation	Explanation	Duty or Power	National Deadline	NCC Deadline	Strategy Reference Point
Power to request information	Flood & Water Management Act (2010)	LLFAs and the Environment Agency may request information from an individual in relation to the authority's risk management functions. The information must be provided in the form/manner and period specified within the request. Enforcement action may be taken if the individual neglects to comply with the request. A financial penalty may also be imposed.	Power	Ongoing	Ongoing	<a href="#">Section 7 - Strategy Objectives</a>
Creation and maintenance of an asset register	Flood & Water Management Act (2010)	This section requires LLFAs to establish and maintain a register of structures, or features, which may significantly affect flood risk in their administrative area and also provide a record of information about such structures and features, including ownership and state of repair.  The register must be available for public inspection at all reasonable times. This requirement does not apply to the record which may contain personal or other confidential data. The method by which inspection of the register is provided is not specified in the legislation.	Duty	Not set	Asset identification ongoing	<a href="#">Section 7 - Strategy Objectives</a>
Investigation of flooding incidents	Flood & Water Management Act (2010)	The purpose of this provision is to require the LLFA to investigate flooding incidents where appropriate, so as to try and ascertain where responsibility for managing the flood risk lies and what is being done about it.  The LLFA must publish the results of any investigation and notify any relevant flood risk management authority of those results.	Duty	Ongoing	Ongoing	<a href="#">Section 7 - Strategy Objectives</a>
Sustainable Development	Flood & Water Management Act (2010)	In exercising its risk management functions, all risk management authorities must contribute towards achievement of sustainable development.	Duty	Ongoing	Ongoing	<a href="#">Section 7 - Strategy Objectives</a>

Function	Legislation	Explanation	Duty or Power	National Deadline	NCC Deadline	Strategy Reference Point
Designation of Features	Flood & Water Management Act (2010)	<p>This Schedule to the Act provides additional legal powers for certain authorities in England and Wales to formally designate assets or features which affect flood risk. It increases the regulatory control of the significant number of assets or features, which form flood risk management systems, but which are not maintained or operated by those formally responsible for managing the risk.</p> <p>Once a feature is designated, the owner must seek consent from the designating authority to alter, remove, or replace it. A series of conditions have to be met prior to designation.</p>	Power	Ongoing	Ongoing	<a href="#">Section 7 - Strategy Objectives</a>
Land Drainage Act 1991 consenting and enforcement powers.	Flood & Water Management Act (2010)	With the provisions in the Flood and Water Management Act 2010, powers relating to consenting and enforcement on ordinary watercourses moved from the Environment Agency to LLFAs outside areas under the jurisdiction of an Internal Drainage Boards (IDBs) where relevant.	Duty	Ongoing	Consenting delegated to the <a href="#">Bedford Group of IDBs</a> on 6 April 2012, ongoing.	<a href="#">Section 7 - Strategy Objectives</a>
Sustainable Drainage (SuDS) Approval Body (SAB)	Flood & Water Management Act (2010)	<p>LLFAs must establish a SuDS Approval Body (SAB), having a range of responsibilities including:</p> <ul style="list-style-type: none"> <li>• The approval of proposed drainage systems in new and redevelopments;</li> <li>• Determining the drainage application aspect of planning permissions;</li> <li>• Adopting and maintaining SuDS which serve more than one property, where they have been approved; and</li> <li>• Designating SuDS on private property as features that affect flood risk and detailing all approved SuDS structures and features on the asset register.</li> </ul>	Duty	Commence -ment date to be set by Defra	Commence -ment date to be set by Defra	<a href="#">Section 7 - Strategy Objectives</a>

Function	Legislation	Explanation	Duty or Power	National Deadline	NCC Deadline	Strategy Reference Point
General Powers: Flood Risk Management Works	Flood & Water Management Act (2010)	LLFAs have powers to undertake works to manage surface water runoff and groundwater flood risks. Powers to do works on ordinary watercourses remain with the district authorities and IDBs in Drainage Board Districts.	Power	Ongoing	Ongoing	<a href="#">Section 3 - Legislative Background</a>
Preliminary Flood Risk Assessment (PFRA) Report	Flood Risk Regulations (2009)	A LLFA must prepare a PFRA for their area. A PFRA is a report about past floods and the possible harmful consequences of future floods. The report must be based on relevant existing information.	Duty	22 December 2011	Completed 22 June 2011	<a href="#">Section 3 - Legislative Background</a>
Identify areas of significant flood risk	Flood Risk Regulations (2009)	Ministerial guidance has been published about the criteria for assessing whether a risk of flooding is significant. The Environment Agency has used the Flood Map for Surface Water and the Defra guidance to produce indicative flood risk areas. It is important to note that no Indicative Flood Risk Areas have been identified in Northamptonshire.	Duty	22 December 2011	Completed 22 June 2011	<a href="#">Section 3 - Legislative Background</a>
Production of flood hazard maps and flood risk maps	Flood Risk Regulations (2009)	For each indicative flood risk area identified (which Northamptonshire has none, see <a href="#">Section 3.9</a> ) surface water flood risk and hazard maps are required. The Environment Agency must also prepare the flood risk and hazard maps for flood risk from the sea, main rivers and reservoirs.  The Environment Agency has agreed to undertake the production surface water flood risk and hazard maps for the whole country.	Duty	December 2013	N/A	<a href="#">Section 3 - Legislative Background</a>
Production flood risk management plan	Flood Risk Regulations (2009)	Flood Risk Management Plans should be produced for areas at nationally-significant flood risk. Northamptonshire is not classified as being at significant risk.	Duty	December 2015.	N/A	<a href="#">Section 3 - Legislative Background</a>

## *Water Companies*

- 4.7. Water and sewerage companies are responsible for managing the risks of flooding from public sewer systems. A public sewer is a conduit, normally a pipe, that is vested in a Water and Sewerage Company, or predecessor, that drains two or more properties and conveys foul, surface water or combined sewerage from one point to another point and discharges via a positive outfall. Public sewers are designed to protect properties from the risk of flooding in normal wet weather conditions. However, in extreme weather conditions there is a risk that sewer systems can become overwhelmed and result in sewer flooding.
- 4.8. Three water companies operate within Northamptonshire (see [Map A1](#) of Water Company boundaries in [Appendix 3](#)):
- [Anglian Water Services Ltd](#)
  - [Thames Water Utilities Ltd](#)
  - [Severn Trent Water Ltd](#)
- 4.9. Anglian Water Services Ltd (or "Anglian Water") covers the vast majority of Northamptonshire. Thames Water Utilities Ltd covers part of the county to the south and west of Brackley, while Severn Trent Water Ltd covers a small part of the county to the west of Daventry.
- 4.10. Since October 2011, under the 'Private Sewer Transfer', Anglian Water will adopt piped systems on private land that are connected to a public sewer. Sewerage Undertakers have a duty under Section 94 of the Water Industry Act 1991, to provide sewers for the drainage of buildings and associated paved areas within property boundaries.
- 4.11. There is no automatic right of connection for other sources of drainage to the public sewer network. Connection is therefore discretionary following an application to connect.

## *Internal Drainage Boards*

- 4.12. The administrative area of Northamptonshire contains only one Internal Drainage Board (IDB) known as the [Bedford Group of Drainage Boards](#) and is located in South Northamptonshire. The area covered is extremely small and is located in the southernmost part of the County, on the boundary with Milton Keynes within the Great Ouse catchment area. See [Map A2](#) of the IDB boundary located within [Appendix 3](#). This IDB is a consortium of statutory bodies providing local storm water management by undertaking watercourse maintenance and improvement. They are defined as a Flood Risk Management Authority; they undertake Consenting and Enforcement of works to ordinary watercourses under Section 23 of the Land Drainage Act 1991 within their district and have the delegated powers within the whole of Northamptonshire. They also adopt and maintain sustainable drainage systems and provide advice and direction to local authorities as part of the planning application process in relation to flood and water management.
- 4.13. IDBs have an important role to play in flood risk management and habitat creation and management. They are able to involve local people, as well as raise funds from beneficiaries and stimulate volunteer activity.
- 4.14. They are independent public authorities and their membership includes representatives of the occupiers of the land within their district and local authority nominees to represent other interests.

## *District and Borough Councils*

4.15. There are seven borough and district councils in Northamptonshire. See [Map A3](#) of the council boundaries in [Appendix 3](#).

- [Corby Borough Council](#);
- [Daventry District Council](#);
- [East Northamptonshire District Council](#);
- [Kettering Borough Council](#);
- [Northampton Borough Council](#);
- [South Northamptonshire Council](#); and
- [Borough Council of Wellingborough](#).

4.16. The information set out below highlights the full range of mechanisms available to District and Borough Councils in the exercise of their flood risk management functions.

4.17. Responsibilities under the **Flood and Water Management Act 2010** include:

- Section 6 District Councils are classed as Risk Management Authorities.
- Section 11 In exercising its flood and coastal erosion risk management functions, a district council must act in a manner which is consistent with the national strategy and associated guidance, and also act in a manner which is consistent with local strategies and associated guidance. In exercising any other function in a manner which may affect a flood risk or coastal erosion risk, a district council must have regard to the national and local strategies and guidance.
- Section 13 A District Council must co-operate with other Risk Management Authorities in the exercise of their flood and coastal erosion risk management functions. A district council may share information with another risk management authority for the purpose of discharging its duty in the exercise of their Flood and Coastal Erosion Risk Management functions. In addition, a district council may arrange for a flood risk management function to be exercised on its behalf by another risk management authority or a navigation authority.
- Section 27 In exercising a flood or coastal erosion risk management function, district councils must aim to make a contribution towards the achievement of sustainable development.
- Section 39 A district council may carry out work (as specified by Section 3 (3) (a) to (e) of the Act) that will or may cause flooding, increase water below the ground or coastal erosion.
- Schedule 1 District Councils are classed as designating authorities under Schedule 1 of the Act. This allows district councils, where the conditions outlined in Schedule 1 are satisfied, to designate a structure, or a natural or man-made feature of the environment where the authority thinks that the existence or location of the structure or feature affects flood risk. The effect of designation is that a person may not alter, remove or replace a designated structure or feature without the consent of the responsible authority.

4.18. Responsibilities under the **Land Drainage Act 1991** (as amended by the Act) include:

- Section 14A A District Council may carry out flood risk management work where the authority considers the work desirable having regard to the local flood risk management strategy for its area and that the purpose of the work is to manage a flood risk in the authority's area from an ordinary watercourse.

Section 66 A district council may make byelaws to secure the efficient working of a drainage system in the authority's district or area, to regulate the effects on the environment, to secure the effectiveness of flood risk management work within the meaning of section 14A and/or to secure the effectiveness of works done in reliance on Section 39 of the Flood and Water Management Act 2010.

4.19. Responsibilities under the [Public Health Act 1936](#) include:

Section 260 A district council may undertake works to manage statutory nuisances in connection with watercourses, ditches, ponds, etc as outlined by Section 259 of the Public Health Act 1936. This includes the clearance of any obstruction or impediment to the proper flow of water. Other provisions within the Public Health Act 1936 outline further provisions related to watercourses, culverting and land drainage.

4.20. Responsibilities under the [Environmental Protection Act 1990](#) include:

Section 79 Section 79 (Statutory nuisances and inspections therefore) outlines that the following would constitute a statutory nuisance; that any water covering land or land covered with water which is in such a state as to be prejudicial to health or a nuisance.

4.21. Responsibilities under the [Localism Act 2011](#) include:

Section 9FH & 9JB A district council (as a risk management authority) must comply with a request made by a lead local flood authorities overview and scrutiny committee, in the course of its arrangements to review and scrutinise the exercise by risk management authorities of flood risk management functions which may affect the local authority's area. District councils must have regard to reports and recommendations of an overview and scrutiny committee in the course of arrangement outlined above.

4.22. Under planning legislation, Borough and District Councils operate their development planning and control functions, having due regard to the National Planning Policy Framework and associated technical guidance.

### *The Environment Agency*

4.23. The Environment Agency retains its responsibility for the management of flood risk from the sea, main rivers and reservoirs. It gains a strategic overview role for all forms of flooding in addition to existing responsibilities for the prevention, mitigation and remedying of flood damage for main rivers and coastal areas.

4.24. Main rivers are watercourses shown on the statutory main river map held by the Environment Agency and Defra. The Environment Agency has permissive powers to carry out works of maintenance, improvement and flood defence on main rivers. This can include any structure or appliance for controlling or regulating flow of water into or out of the channel. The overall responsibility for maintenance of main rivers, however, lies with the riparian owner.

4.25. The Environment Agency is the lead organisation responsible for all flood and erosion risk management around the coastline of England, including tidal flood risk. The Environment Agency leads the country in developing a coastal management plan that works at local, regional and national level, with partner organisations, including local authorities, putting agreed plans into practical action. The Environment Agency supports this by giving Grant-in-Aid funding and overseeing the work carried out.

- 4.26. The Environment Agency enforces the [Reservoirs Act 1975](#), which is the safety legislation for reservoirs in the United Kingdom. Although the responsibility for safety lies with the owners, the Environment Agency is responsible as Enforcement Authority of reservoirs in England and Wales that are greater than 25,000m<sup>3</sup> 10,000m<sup>3</sup>. The Environment Agency is also responsible for establishing and maintaining a register of reservoirs, and making this information available to the public. As Enforcement Authority the Environment Agency must ensure flood plans are produced for specified reservoirs.
- 4.27. The Environment Agency is responsible for controlling works which affect main rivers and flood defences through consenting works under the Water Resources Act 1991 and their Land Drainage and Sea Defence Byelaws.
- 4.28. The Environment Agency is also responsible for providing advice to planning authorities, providing fluvial and coastal flood warnings, monitoring flood and coastal erosion risks and supporting emergency responders when flooding occurs.
- 4.29. In its strategic overview of all sources of flood risk role, the Environment Agency provides:
- Advice to Government on flood and coastal erosion risk, supporting future national responses, policy and strategy;
  - Supervision of flood and coastal erosion risk management;
  - Allocation of flood and coastal erosion risk management capital funding; and
  - Support to LLFAs by providing data and guidance on assessing, planning and carrying out flood risk management for flooding from ordinary watercourses, surface runoff and groundwater.

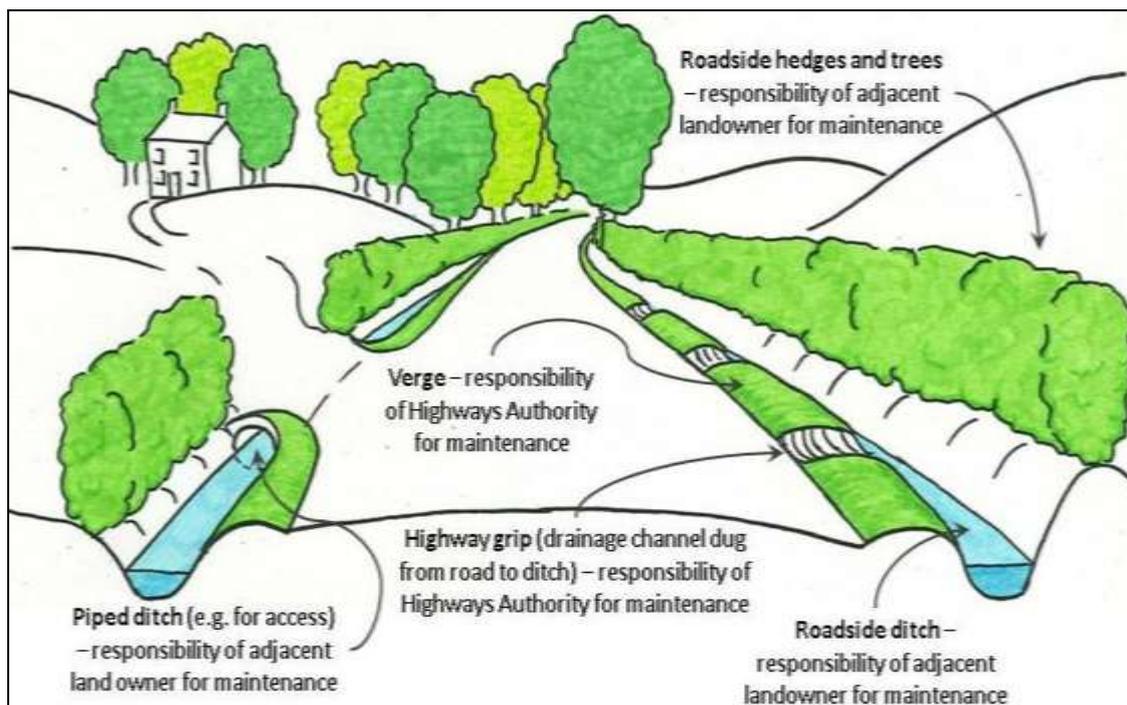
### *Highways Authority*

- 4.30. Northamptonshire Highways is responsible for the provision and management of highway drainage under the Highways Act (1980). This excludes motorways and trunk roads (M1, A5, A43, A45, A14 and the M45) that are the responsibility of the Highways Agency (see below).
- 4.31. Northamptonshire Highways has various duties and powers in relation to flooding and drainage on the highway. The Highway Authority is not responsible for flooding or drainage on private land – this is the responsibility of the owner or occupier of the land. Where flooding on a highway is caused by another person (e.g. an adjoining landowner), the Highway Authority can take action against the person responsible.
- 4.32. Highway drainage systems are for the primary purpose of accepting surface water runoff from the highway and are the responsibility of the Highway Authority unless they have been specifically adopted by the sewerage undertaker.
- 4.33. Ditches that run within the limits of the highway do not usually form part of the highway (since they do not assist the free passage of people or vehicles along the highway) and remain the responsibility of the adjacent landowner or occupier. However, where the ditches have been designated as forming part of the highway on land owned by the Highway Authority, or where the ditch was constructed for the sole purpose of draining the highway, then the ditch will form part of the highway and will be the responsibility of the Highway Authority.
- 4.34. Most open ditch drainage systems are historic and are the responsibility of the adjoining landowner for maintenance, but the Highway Authority has prescriptive powers drain into them. The Highway Authority can cleanse and restore the profile of these ditches as appropriate.

4.35. In most rural situations, roadside verges alongside private property will form part of the publicly maintained highway. Where there is a drainage ditch within the verge, the ditch is the responsibility of the original landowner who dedicated the route as highway, or the successor in title. Therefore, although the Highway Authority is responsible for maintaining the surface of the verge, the subsoil remains within the ownership of the adjacent landowner which includes the sides and base of the ditch. It is the responsibility of the land owner to ensure that the ditch is adequately maintained and consent is obtained where required for any works.

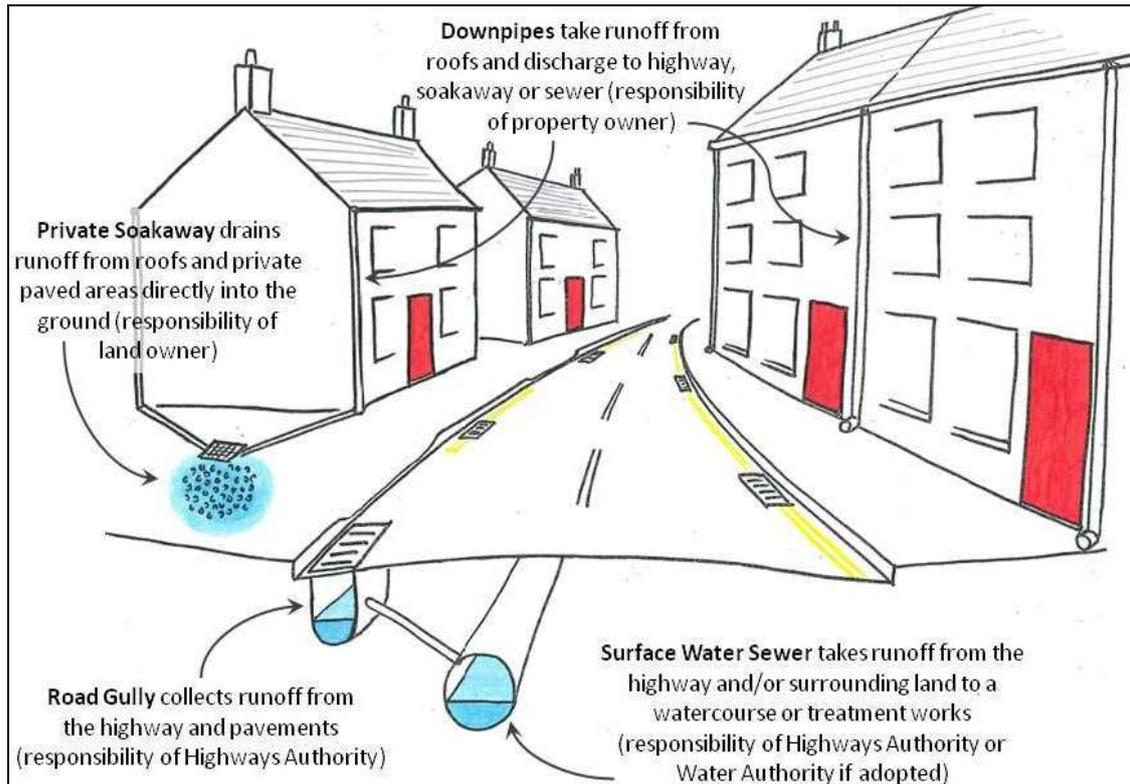
4.36. The following diagram in [Figure 4-1](#) below illustrates the roles and responsibilities in relation to rural roadside ditches.

**Figure 4-1: Ditch Ownership and Maintenance Responsibilities**



4.37. The diagram in [Figure 4-2](#) below illustrates the roles and responsibilities in relation to urban drainage.

**Figure 4-2: Ditch Ownership and Maintenance Responsibilities**



### *Highways Agency*

4.38. One recommendation of the Pitt Review was that the Highways Agency should consider the vulnerability of its network to flooding and prepare suitable measures to reduce the effects on road users.

4.39. The recommendations have been divided into the following project objectives:

- Identify locations on the network most sensitive to flooding;
- Produce maps showing the location of recent flooding events;
- Compare flooding events with the weather conditions to assess the risk of repeat events; and
- Identify quick win options for reducing the effects of flooding to road users.

4.40. The Highways Agency has been engaging with its service providers to identify the extent of existing flooding problems and the way in which they are currently being recorded.

4.41. Where motorways or trunk roads are identified as being at risk from flooding, contingency plans will now be prepared to warn road users and, where necessary, divert them away from the problem. Where possible, weather data from the Met Office will be analysed and if intense rainfall events are forecast in sensitive flood areas suitable warnings will be posted using the variable message signs.

### *Riparian Owners*

4.42. Under common law, a riparian owner is someone who has a watercourse within or adjacent to any boundary of their property. Where a watercourse is sited between two or more property boundaries each owner may be equally responsible up to the centre line of the watercourse.

4.43. Although not defined as a flood risk management authority under the Act, riparian owners retain their own duties and responsibilities for watercourses on or adjacent to

their land as set out in the Land Drainage Act 1991. This includes the responsibility for the maintenance of any river, stream, ditch, drain, cut, dyke, sluice, culvert, sewer (excluding public sewers) or any other passage through which water flows.

4.44. There are two sets of guidance available which can help clarify rights and responsibilities of riparian owners:

- Guidance for Riparian Owners in Northamptonshire (NCC) at <http://www.northamptonshire.gov.uk/en/councilservices/environ/flood/pages/roles-and-responsibilities.aspx>
- Living on the Edge (Environment Agency) at <http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx>

### *Parish Councils*

4.45. Parish Councils have the powers to undertake maintenance works on ponds, ditches and other open drainage in order to prevent the feature from becoming a risk to health. For further details see

<http://www.legislation.gov.uk/ukpga/Geo5and1Edw8/26/49/section/260>.

### *Other bodies*

4.46. There are many other bodies that play an important role in flood risk management. Natural England and English Heritage are the Government's advisors on the natural environment and cultural heritage/ built environment respectively.

4.47. The Met Office, the Canal and River Trust (formerly British Waterways), and utilities providers all have important expertise and/or infrastructure that may impact on flood risk management.

4.48. There are also many non-government organisations that contribute to managing flood risks, including:

- Centre for Ecology and Hydrology;
- Institute of Civil Engineers;
- Chartered Institute of Water and Environment Management;
- British Hydrological Society;
- Met Office;
- Flood Forecasting Centre;
- Association of British Insurers;
- Royal Society for the Protection of Birds;
- Local Wildlife Trust;
- Forestry Commission;
- Woodland Trust;
- Association of Drainage Authorities;
- Engineering consultants and contractors;
- National Flood Forum;
- Red Cross;
- Salvation Army;
- Professional institutions and universities;
- Country Land and Business Association;
- National Farmers Union;
- River Restoration Centre; and
- Network Rail.

4.49. The following [Table 4.2](#) sets out the roles and responsibilities of the different flood risk management authorities in Northamptonshire.

**Table 4.2: Roles and Responsibilities of Flood Risk Management Authorities**

	<b>Lead Local Flood Authority (County Council)</b>	<b>District Councils</b>	<b>Highways Authority</b>	<b>Bedford Group of Internal Drainage Boards</b>	<b>Water Companies</b>	<b>Environment Agency</b>
Strategic co-ordinating function in relation to flood and water management	Yes	No	No	No	No	Yes
Duty to act consistently with the National Flood and Coastal Erosion Risk Management Strategy	Yes, for flood risk management functions.	Yes, for flood risk management functions.	Responsible for preparing the National Flood and Coastal Erosion Risk Management Strategy.			
Duty to act consistently with Local Flood Risk Management Strategies	Yes, for flood risk management functions.	No – only to have regard to them.	Support the development of Local Flood Risk Management Strategies.			
Duty to have regard to Local Flood Risk Management Strategies	Yes, for other functions that may affect flood risk.	Yes, for other functions that may affect flood risk.	Yes, for other functions that may affect flood risk.	Yes, for other functions that may affect flood risk.	Yes, for all relevant functions.	No.
Duty to investigate a flood from any source	Yes, to the extent it considers necessary.	No	No	No	No	No.
Duty to maintain an asset register of structures or features which affect flood risk from all sources	Yes	No	No	No	No	No, but they do have a register for main river assets.
Power to designate 3rd Party assets which affect flood risk from all sources	Yes	Yes	Yes	Yes	No	Yes

	Lead Local Flood Authority (County Council)	District Councils	Highways Authority	Bedford Group of Internal Drainage Boards	Water Companies	Environment Agency
Duty to co-operate and provide information in connection with flood risk management functions	Yes	Yes	Yes	Yes	Yes	Yes
Power to request information in connection with flood risk management functions	Yes	Yes	Yes	Yes	Yes	Yes
Power to enter into arrangements/ delegation of responsibilities under the Act	Yes	Yes	Yes	Yes	Yes	Yes
Powers to undertake new and existing flood risk management works, improve and build new	Yes for surface water and ground water only.	Yes on ordinary watercourses, if not in an IDB area.	Yes under Highways Act 1980.	Yes on ordinary watercourses in Internal Drainage Board areas.	Yes if related to drainage.	Yes for main river
Environmental works powers to manage flooding and water levels in the interests of nature conservation, the preservation of cultural heritage or people's enjoyment of the environment or cultural heritage	Yes	Yes	Yes	Yes	Yes	Yes
Enforcement Powers <ul style="list-style-type: none"> <li>Un-consented works - S23 of LDA, when owner does work without permission.</li> <li>When riparian owner fails to do work to maintain -S25 of LDA</li> </ul>	Yes	No, but can be delegated to them by the LLFA if in agreement.	No	Yes	No	No, powers relate to main river only.
Powers to consent works which may impede the proper flow of water in ordinary watercourses	Yes	No, but can be delegated to them by the LLFA if in agreement.	No	Yes	No	No, main river consenting only.

## 5. LOCAL PARTNERSHIPS, GOVERNANCE AND SCRUTINY

- 5.1. The Flood and Water Management Act (2010) requires the County Council as the Lead Local Flood Authority (LLFA) to establish arrangements to bring together all relevant bodies to work as partners in the management of local flood risk. This approach has been further strengthened through the 2011 Localism Act and the 'Duty to cooperate'. Both Acts recognise the important roles played by district and borough councils, internal drainage boards, highways authorities and water companies and identifies these bodies, together with the Environment Agency as 'Flood Risk Management Authorities'.
- 5.2. Although the Act does not stipulate what these local arrangements should look like, it does require the relevant authorities to co-operate with each other in exercising functions under the Act. It also empowers LLFAs or the Environment Agency to require information from others needed for their flood risk management functions.

### *Local partnership and governance arrangements*

- 5.3. The County Council has set out an organisational framework to support local flood risk management including the development and implementation of this Local Flood Risk Management Strategy. The framework is intended to ensure that partnerships are managed in ways which enhance the co-ordination of policy and actions; and provide strong accountability and transparency i.e. a clear demonstration of cooperation and the 'added value' of partnership working.
- 5.4. The following framework illustrated in [Figure 5-1](#) has been produced to coordinate partnership working and to address flood risk issues in Northamptonshire.

**Figure 5-1: Northamptonshire Partnership Model**



### *Strategic Flood Risk Management Board*

- 5.5. The Strategic Flood Risk Management Board considers strategic and national flood risk matters and comprises: Environment Agency (Chair), County Council members, Regional Flood and Coastal Committee Member Representatives, a Local Resilience Forum Representative, and the chair of the Local Flood Risk Operational Group.
- 5.6. The group's role is to take a strategic overview of the entirety of flood risk and drainage management across Northamptonshire, including from all inland flooding sources. It will ensure effective integration of flood risk planning and response at a strategic level in the county.

5.7. The Board will:

- Provide strategic guidance to the Local Flood Risk Operational Group;
- Review partnership roles and performance;
- Provides the strategic linkages to the National Flood and Coastal Erosion Risk Management Strategy;
- Promote co-ordinated approaches to flood and coastal risk management investment, planning and delivery across Northamptonshire, integrated with arrangements for emergency response;
- Assess the implications of flood, coastal and drainage risk management strategies for Northamptonshire and agree appropriate joint approaches to their development (for example Catchment Flood Management Plans, Multi-Agency Flood Plans, and local development framework);
- Promote risk-based investment strategies and plans for flood risk and drainage management across Northamptonshire;
- Maximise opportunities to influence partner strategies and resource allocation and to maximise external funding;
- Guide the development of joint strategies for promoting public awareness and confidence in flood and drainage risk management arrangements, and ensure effective linkages with communications developed through the Northamptonshire Resilience Forum; and
- Ensure appropriate reference to relevant national strategies and policies.

### *Local Flood Risk Operational Group*

5.8. The Local Flood Risk Operational Group enables the County Council as Lead Local Flood Authority to fulfil its statutory roles and to determine the work programme, projects and issues to be considered by the 'Task Groups'.

5.9. Membership comprises:

- County Council officers;
- All District and Borough Councils;
- The Environment Agency;
- County Highways Authority;
- The Highways Agency;
- Anglian Water Services;
- Northamptonshire Fire and Rescue;
- North Northamptonshire Joint Planning Unit;
- West Northamptonshire Joint Planning Unit;
- The Bedford Group of Drainage Boards;
- County Emergency Planning; and
- County Environment Unit.

5.10. The Partnership's primary purpose, therefore, is to ensure that effective flood risk management and resilience is built into service delivery in a manner which delivers better protection from flood risk for communities and key infrastructure.

5.11. The aims of the Local Flood Risk Operational Group include:

- a) To identify new funding opportunities, more cost effective methods of joint working and ensure that the core skills, competencies and resources are safeguarded;
- b) To share data, skills and best practice within Northamptonshire to ensure that flood risk management delivery is feasible, proportionate and sustainable;
- c) To provide a unified voice on flood risk and drainage matters on national policy and funding matters;

- d) To ensure that the general public is aware of the flood risk responsibilities and that partner organisations are familiar with their respective roles, responsibilities and duties and that work programmes are aligned accordingly;
- e) To receive reports on and provide a strategic input and direction to development plans, policies and programmes of works developed to manage flood risk in the county;
- f) To address specific issues affecting delivery or collaborative working as and when they arise;
- g) To assist in the reporting of flood risk management activity and programmes to Scrutiny committees;
- h) To establish project management/task groups as appropriate to deliver flood risk management measures; and
- i) To promote activities engaging and educating the public on flood risk issues.

### *Northamptonshire Leadership Group*

5.12. The Northamptonshire Leadership Group was established in April 2011. The Group brings together all of the public sector leaders in the county to improve partnership working and to promote Northamptonshire. Partnership matters emulating from the Strategic Flood Risk Management Board will be reported to the Northamptonshire Leadership Group by either the elected Leader or the Chief Executive of the County Council.

### *The Local Resilience Forum*

5.13. The Local Resilience Forum is a partnership consisting of risk management authorities, local emergency and health services, and utility and transport organisations. It addresses through planning and risk management, the consequences of any emergency that may occur within the county. Further information on the work of the Local Resilience Forum can be found at [www.northants.police.uk/lrf/](http://www.northants.police.uk/lrf/).

### *Regional Flood and Coastal Committees*

5.14. Although they are not risk management authorities, [Regional Flood and Coastal Committees](#) (RFCCs) have been established to take forward much of the work previously carried out by Regional Flood Defence Committees, with an extended remit to include coastal erosion. They play an important local role in guiding flood and coastal management activities within catchments, advising on and approving programmes of work for their areas and continuing to raise local levies under existing arrangements to fund local priority projects and works.

5.15. Local democratic input is achieved by the majority of representatives on the RFCC being elected County Council members. The members have a key role in balancing local priorities and making sure that investment is co-ordinated at the catchment scale and in promoting the consideration of climate change impacts in local decision making.

### *Scrutiny Arrangements*

5.16. This Strategy has been subject to a robust democratic scrutiny and review process as required by the Act. The County Council has put in place scrutiny arrangements, which include arrangements to review and scrutinise flood risk management functions.

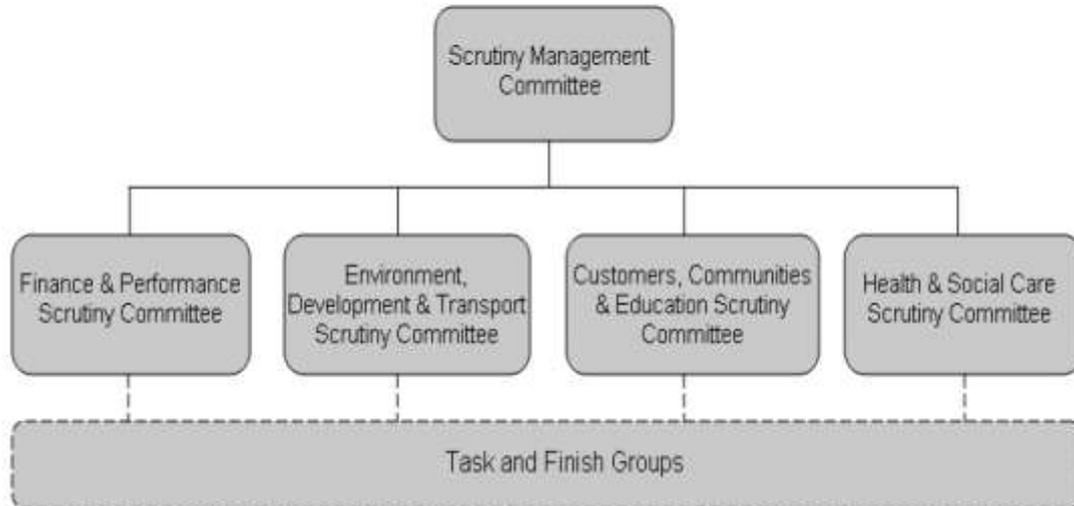
5.17. The [Flood and Water Management Act \(2010\)](#) added a new section (21F) to the [Local Government Act \(2000\)](#), which extends the powers of Overview and Scrutiny Committees in England. The amendment provides powers to Lead Local Flood Authorities to allow for the scrutiny of risk management authorities in relation to their flood risk management functions. It also gives risk management authorities a duty to

comply with requests for information, or responses to reports, from the Overview and Scrutiny Committees.

5.18. Scrutiny is an essential part of ensuring that local government remains effective and accountable. It is a process of examining and monitoring the activity of a council with the aim of improving the quality of public services. Scrutiny ensures that the decision-making process is clear and accessible to the public. It enables members of the community and councillors to play a part in influencing policy and improving public service delivery.

5.19. The County Council has five Scrutiny committees:

**Figure 5-2: Northamptonshire County Council Scrutiny Structure**



5.20. The Environment, Development & Transport Scrutiny Committee is responsible for scrutinising and reviewing matters relating to flood risk management as well as protective functions including Fire and Rescue, and Emergency Planning. This committee comprises ten elected members with half of its membership having joint responsibilities, sitting as councillors for Borough and District Councils within Northamptonshire.

5.21. Member support will continue to be developed through proactive briefing sessions and workshops, especially in developing an understanding of the roles of different risk management authorities and also through working with Borough and District Councils.

### *Full Council*

5.22. The County Council comprises of fifty-seven elected members, called councillors. Councillors are elected by the voters of each electoral division and are approved by the Secretary of State. The council meets six times a year and makes the high level decisions, for example changing the council’s constitution or setting the level of council tax.

5.23. The full Council has such wide powers it would be impractical for it to make every decision itself. It therefore concerns itself with setting the broad policy and budgetary framework of the authority. More detailed decisions are made by the Council’s Cabinet.

### *Cabinet*

5.24. The County Council's cabinet is comprised of seven Conservative councillors and the Conservative Leader of the council. Cabinet members work closely with the directors and professional officers of the council to ensure the successful implementation of the decisions they make. Each Cabinet member is responsible and publicly accountable for

a range of council services (their 'portfolio'), many also having joint responsibilities sitting as councillors for Borough and District Councils within Northamptonshire. The Cabinet will ensure this Strategy meets the requirements of the Flood & Water Management Act.

### *Cross-Catchment Working*

5.25. It is appreciated that a catchment-based approach towards flood risk management is extremely sensible and that this has already been undertaken by the Environment Agency when developing Catchment Flood Management Plans. Although this Strategy is based on the county boundary, as this falls within the LLFAs remit, the County Council continues to work closely with neighbouring LLFAs to ensure that any cross catchment boundary issues are addressed. This method of partnership working in all aspects of the LLFAs work ensures that there will be no transfer of risk to or from other risk management authorities. For more information on the compliance of this Strategy to the principles of the Catchment Flood Management Plans, see [Appendix 5](#).

## 6. ASSESSMENT OF LOCAL FLOOD RISK IN NORTHAMPTONSHIRE

### *Historic Flooding in Northamptonshire*

- 6.1. There is a history of flooding in Northamptonshire, with the two most significant events in recent years occurring on 10 April 1998 and 21<sup>st</sup> November 2012, both after heavy rainfall fell on already saturated ground in the county.
- 6.2. In April 1998, Northampton and the surrounding areas were flooded due to very heavy rainfall, channel exceedance, flood defence malfunction, surface water flooding and canal overtopping. An estimated 4,200 properties were affected causing over £75 million worth of damage. Many of these properties were commercial properties and critical infrastructure was also affected. Towns, villages and agricultural land in Northamptonshire were severely damaged by the flooding. In the town of Northampton alone, over 2,500 properties were flooded, two people died and 150 people were treated in hospital for flood related injuries and hypothermia. The worst flooding was in the St James and Far Cotton areas.
- 6.3. As a result of the major Easter 1998 floods, the flood defences through central Northampton were upgraded and now provide the town one of the highest design standards of protection in the country. Further work to improve defences was additionally undertaken elsewhere on the River Nene.
- 6.4. A total of 20-30mm of rain fell across the county on 21st November 2012 with some parts getting as much as 40mm, causing widespread surface water and fluvial flooding. A further approximately 20mm of rain fell on the night of 24th November 2012, which resulted in further flooding across the county.
- 6.5. A total of 342 flood incidents were reported across the county during the last two weeks of November 2012. Of these incidents, it is believed that approximately 140 properties were affected internally by flooding. The flooding was mainly as a result of heavy rainfall, sewer incapacity, channel exceedance and agricultural runoff.
- 6.6. The flood defence improvements built along the River Nene after 1998 helped to protect several communities from flooding, including Weedon, Kislingbury, Northampton town centre, Thrapston and Geddington.
- 6.7. Other noteworthy flood incidents that have occurred in the County include:
  - 2012 (July) – a number of properties were affected following heavy rainfall;
  - 2007 (June) – three intense rainfall events falling on a dry catchment, resulted in flooding in the Wootton Brook and Collingtree Park area of Northampton due to channel capacity being exceeded, and flooding of numerous properties in Kettering due to a combination of the Slade Brook exceeding channel capacity, local drainage issues and surface water flooding;
  - 1992 (September) – numerous properties flooded in Weedon Bec;
  - 1982 (July) – fluvial flooding in main valley watercourses in Corby resulting from a 1 in 72 year storm event.
  - 1981 (June) – fluvial and surface water flooding of houses and gardens at Swanspool Brook, Wilby, and surface water flooding in Kettering;
  - 1973 – channel incapacity of River Ise causing flooding in Geddington;
  - 1960s – summer storms which were intense but short;
  - 1947 (March) – rapid snowmelt resulted channel capacity being exceeded on the River Nene and River Ise.
- 6.8. As part of the data gathering exercise for the recently produced [Preliminary Flood Risk Assessment \(PFRA\) for Northamptonshire](#), approximately 450 historic flood events were recorded across the county dating back to 1947, and include the following sources:

- Historical data from each of the seven Borough and District councils;
- Historical data from the River Ouzel and Buckingham Internal Drainage Board;
- DG5<sup>3</sup> data from Anglian Water, Severn Trent Water and Thames Water;
- Information from the Canal and River Trust (formally British Waterways);
- Information from Highways Agency and County Council Highways Department; and
- Environment Agency records of flooding plus references to historic floods from studies and plans such as the [Catchment Flood Management Plans](#) and [River Basin Management Plans](#).

6.9. The local flood incidents shown in [Map 3](#) below are those incidents that have been reported to NCC as LLFA, as well as collated from historic sources. They are reported to be a consequence of several factors, including under capacity of structures, surface water flooding and the over flowing of both main river and ordinary watercourses.

6.10. To determine which historic flood incidents should be considered 'locally significant' the collated data was ranked in order of most adverse human and economic consequences to least. From there it was possible to see a clear distinction between significant events that affected hundreds of properties and much smaller events that only affected tens of properties. The vast majority of flooding in the county affects smaller numbers of properties (less than 20). Therefore, 20 properties were taken as the threshold for locally 'significant' flood risk as set out below:

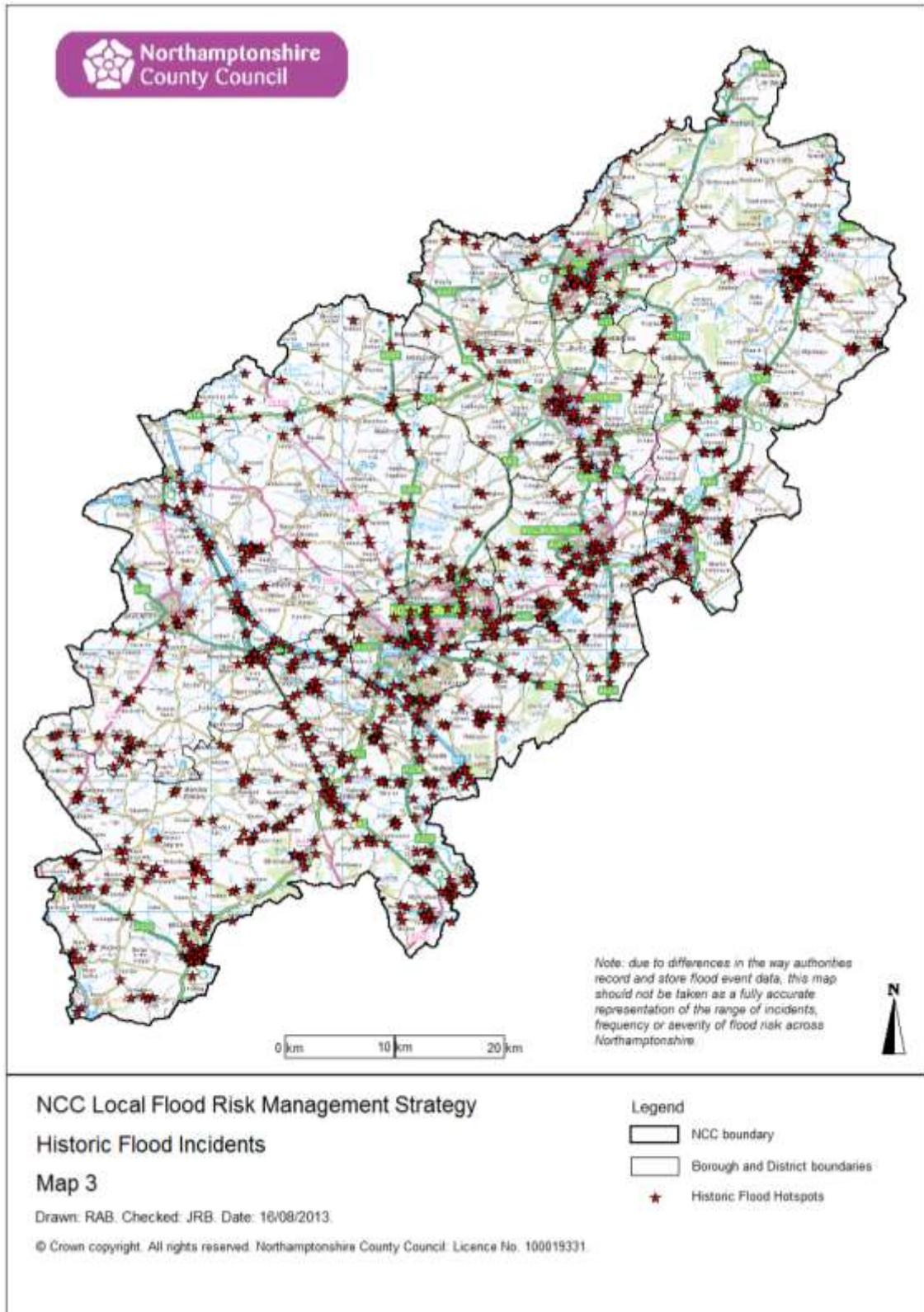
**Table 6.1 Significance of Flood Events in Northamptonshire**

Significance of Flood Event	Definition	Number of Flood Events Currently on Record
Significant:	<ul style="list-style-type: none"> <li>- 20 dwellings (47 people) or more affected; or</li> <li>- 8 business premises affected; or</li> <li>- 1 or more critical service affected; or</li> <li>- 1 Major transport link affected (impassable for 12 hours)</li> </ul>	4
Intermediate:	<ul style="list-style-type: none"> <li>- A single dwelling (2.34 people) to 19 dwellings (45 people) affected; or</li> <li>- 1-7 business premises affected.</li> </ul>	304
Less:	<ul style="list-style-type: none"> <li>- Minor Roads, Residential Gardens or Public open space affected.</li> </ul>	1043

6.11. A complete record of locations where flooding has occurred will be kept by the County Council to inform future reviews of this Strategy.

<sup>3</sup> A water-company held register of properties which have experienced sewer flooding due to hydraulic overload, or properties which are 'at risk' of sewer flooding more frequently than once in 20 years.

Map 3: Historic Local Flood Incidents



## *Potential Flood Risk in Northamptonshire*

6.12. Flood risk within Northamptonshire comes from a number of different sources and is extremely varied and widespread across the county. It is not technically or financially possible to eliminate all risk of flooding across the county. Therefore it is important to take a risk-based approach and prioritise the areas that are at greatest risk and that will provide the most benefit from flood risk management work. This assessment of priority wards will be developed over time as better understanding of local flood risk is established.

### Prioritisation

6.13. The County Council is responsible for the coordination of the management of local flood risk from surface water, groundwater and ordinary watercourses, as well as where there is an interaction between these sources and main rivers.

6.14. In recent years, the risk of surface water flooding has become more prominent and information about the risk has become more informed. The first step taken in the selection and prioritisation of locally important flood risk areas in Northamptonshire was to refer to the risk of flooding from surface water and the associated possible consequences.

6.15. The methodology set out below identifies flood risk prioritisation areas in Northamptonshire. Ten flooding scenarios were explored using the following map data:

- Areas Susceptible to Ground Water Flooding (greater than 75 percent)
- Areas Susceptible to Surface Water Flooding (intermediate)
- Areas Susceptible to Surface Water Flooding (more)
- Flood Map For Surface Water - 1 in 200
- Flood Map For Surface Water - 1 in 200 deep
- Flood Map For Surface Water - 1 in 30
- Flood Map For Surface Water - 1 in 30 deep
- Flood Zone 2
- Flood Zone 3
- Areas Benefiting from Defences

6.16. **Areas Susceptible to Groundwater Flooding** is a strategic scale map showing groundwater flood areas on a 1km square grid. It was developed specifically by the Environment Agency for use by Lead Local Flood Authorities to inform their [Preliminary Flood Risk Assessments](#). 'Greater than 75 percent' refers to the percentage of the 1km square that is at risk from groundwater flooding. This data was created using the highest two susceptibility bands of the British Geological Society (BGS) 1:50,000 Groundwater Flood Susceptibility Map and covers consolidated aquifers (chalk, sandstone etc) and superficial deposits. It does not take account of the chance of flooding from groundwater rebound. It shows the proportion of each 1km grid square where geological and hydro geological conditions show that groundwater might emerge. See [Map A4](#) in [Appendix 3](#).

6.17. The **Areas Susceptible to Surface Water Flooding** maps have been produced using a simplified method that excludes underground sewerage and drainage systems, smaller over ground drainage systems and buildings, and uses a single rainfall event. Therefore this data only provides a general indication of areas which may be more likely to suffer from surface water flooding. 'More' indicates the areas more susceptible to surface water flooding and 'intermediate' indicates areas that have an intermediate susceptibility to surface water flooding. See [Map A5](#) in [Appendix 3](#).

6.18. **The Flood Map for Surface Water** is the most recently produced data set developed by the Environment Agency. The Flood Map for Surface Water better represents the mechanisms that cause surface water flooding in the following ways:

- Better ground and surface elevation data in many areas – using 'local' data;
  - Sewer flow now represented – using a single 'national' figure;
  - Infiltration now represented – using 'national' figures;
  - Storm duration more representative – using a single 'national' figure;
  - Buildings now included – using 'local' data;
  - Two storm probabilities now mapped (1 in 200 and 1 in 30); and
  - Different roughness figures for urban and rural now included – using 'national' figures.
- 6.19. 'Deep' refers to areas which will flood to a depth of greater than 0.3 metres. The other maps are modelled to a depth of greater than 0.1 metres. See [Map A6](#) and [Map A7](#) in [Appendix 3](#).
- 6.20. It is considered that the Flood Map for Surface Water best represents the risks in Northamptonshire, using the Areas Susceptible to Surface Water Flooding and [historic flooding hotspots](#) as supporting evidence.
- 6.21. The Areas Susceptible to Surface Water Flooding map better represents the risk of surface water flooding where local sewer capacity is able to drain at less than 6 millimetres per hour, or in areas that are very flat where longer storm durations are more likely to cause flooding. It is considered that these criteria are not applicable to Northamptonshire and so the Flood Map for Surface Water has been selected as the more appropriate source of information for surface water flood risk in the county.
- 6.22. The **Flood Map** shows the areas that could be affected by flooding from rivers or the sea. It does not show the effects of climate change. Flood Zone 3 is land assessed, ignoring the presence of flood defences, as having a 1% (1 in 100 years) or greater annual probability of fluvial flooding. Flood Zone 2 shows land assessed, ignoring the presence of flood defences, as having between a 1% (1 in 100) and 0.1% (1 in 1000) annual probability of fluvial flooding. Flood Zone 1 is the remaining area. See [Map A8](#) in [Appendix 3](#).
- 6.23. **Areas Benefitting from Flood Defences** map shows areas of land that may benefit from the presence of major defences during a 1% (1 in 100) annual probability fluvial flood event. These are areas that would flood if the defence were not present, but may not flood because the defence is present. See [Map A8](#) in [Appendix 3](#).

### Assessment of Priority

- 6.24. The county is split up into 144 different wards and the following variables have been assessed for each ward using Geographical Information Systems. The majority of information relating to the following variables comes from the Environment Agency's National Receptor Database. This data has been combined with the 10 flood risk scenarios set out in [paragraph 6.15](#) above to provide an Impact Score for each ward.
- Number of properties potentially flooded within each level of deprivation;
  - Number of residential properties potentially flooded;
  - Number of non residential properties potentially flooded;
  - Number of hospitals potentially flooded;
  - Number of sewage treatment works potentially flooded;
  - Number of General Practitioners surgeries potentially flooded;
  - Number of nursing homes potentially flooded;
  - Number of properties per vulnerability band potentially flooded;
  - Whether a Priority 1 road is potentially flooded;
  - Whether a Priority 2 road is potentially flooded;
  - Whether an A Road or motorway is potentially flooded;
  - Number of Sites of Special Scientific Interest potentially flooded;
  - Number of Grade I listed buildings potentially flooded;

- Number of Grade II\* (2 star) listed buildings potentially flooded;
- Number of Local Nature Reserves potentially flooded;
- Number of Local Wildlife Sites potentially flooded; and
- Number of Special Protection Area sites potentially flooded.

6.25. The results of the mapping queries were used to calculate Impact Scores for each ward for a range of factors as outlined below.

- The **health impact score** considers the potential number of vulnerable people flooded (using nursing/care home capacity), number of health care facilities flooded and whether a sewage treatment work or hospital would be flooded;
- The **social impact score** considers the potential number of properties within each deprivation band flooded;
- The **economic impact score** considers the potential total cost of the flooded properties by multiplying the number of residential properties flooded by £30,000, and the number of non-residential properties flooded by £100,000<sup>4</sup>;
- The **environmental impact score** considers the potential total number of Grade I listed buildings, Grade II\* listed buildings, Sites of Special Scientific Interest, designated nature reserves and wildlife sites, and Special Protection Areas flooded;
- The **infrastructure impact score** considers the numbers and significance of each type of road flooded; and
- The **psychological impact score** has been given a constant value of 3 to ensure consistency and equality across the geographic area.

6.26. The average impact score per ward per flooding scenario is calculated and a priority grading is awarded accordingly:

Average Impact Score	Priority Grading
> 1	Low
> 2	Medium
> 3	High
> 4	Very High

## Results of Priority Assessment

6.27. The results of this priority assessment are used to identify those areas where greater effort should be made to identify possible measures to reduce flood risk owing to the negative consequences of flooding in this area. Any proposals for measures however will be subject to the usual social, economic and environmental assessments to determine the viability of such proposals, including any positive or negative impact or risk associated with the proposal.

6.28. A total of 10 flooding scenarios have been assessed, as described above. The Preliminary Flood Risk Assessment determined that the most appropriate dataset for assessing the flood risk from surface water in Northamptonshire is the Flood Map for Surface Water. The only dataset which assesses fluvial flood risk is the Environment Agency's fluvial flood map, and the only dataset which assesses groundwater flood risk is the Areas Susceptible to Ground Water Flooding. The results of the prioritisation assessment for the most extreme scenario of each of these datasets are provided below.

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<sup>4</sup> These costs are taken from the most recent and relevant example, relating to surface water flooding in 2007. A BBC article (<http://news.bbc.co.uk/1/hi/uk/8464717.stm>) states that "around 48,000 homes were affected in 2007, each costing between £20,000 and £30,000 to repair and that the cost for flooded businesses averaged between £75,000 and £112,000."

The tables show the Very High priority wards, and the maps show the priority of each ward. [Appendix 5](#) provides the results of the remaining scenarios.

### Flood Map for Surface Water 1 in 200

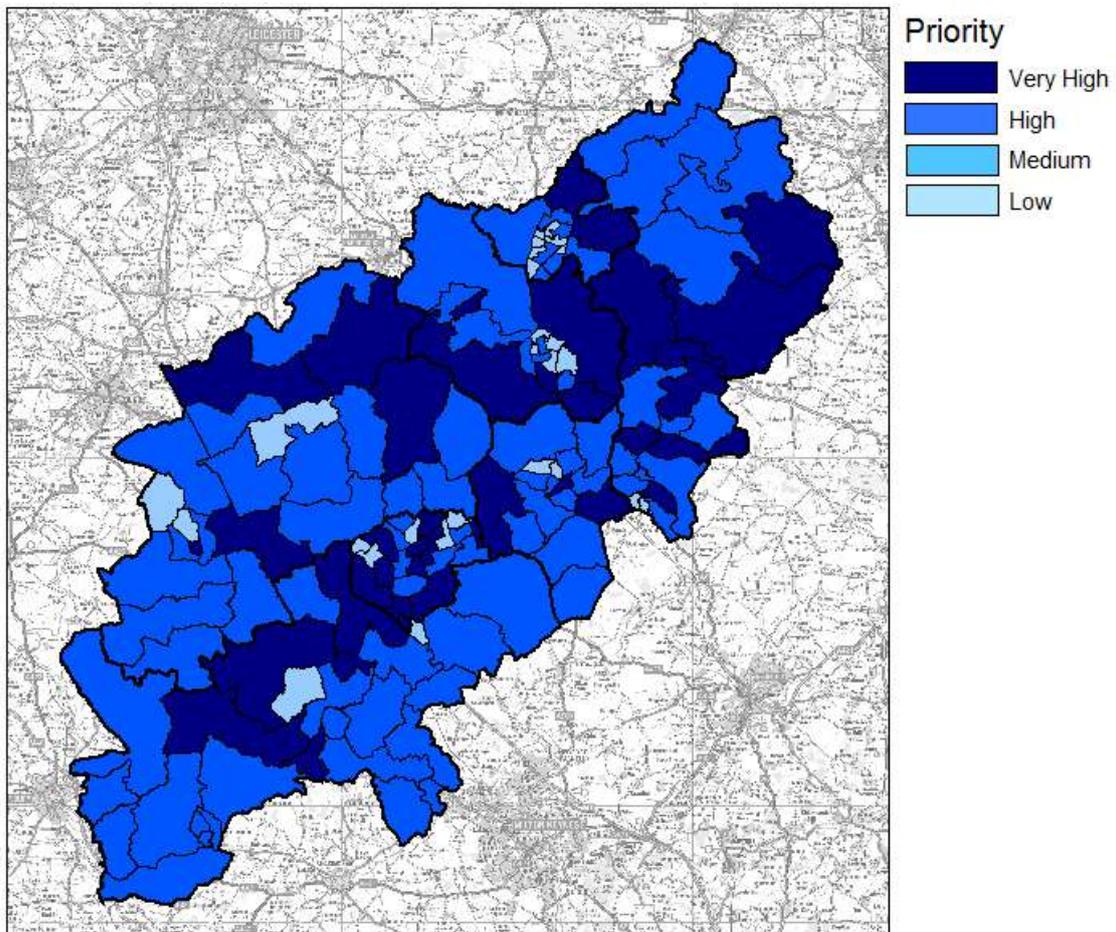
6.29. There are 38 Very High priority wards in Northamptonshire for the Flood Map for Surface Water 1 in 200 scenario, as shown in [Table 6.2](#) below.

**Table 6.2 Very High Priority wards for Flood Map for Surface Water 1 in 200**

Priority	Ward Name	District/Borough
1	Lyveden Ward	East Northants
	St. Crispin Ward	Northampton
	St. James Ward	Northampton
	Swanspool Ward	Wellingborough
	Thrapston Market Ward	East Northants
	Weldon and Gretton Ward	Corby
7	Spencer Ward	Northampton
	Thrapston Lakes Ward	East Northants
9	Blakesley and Cote Ward	South Northants
	Yelvertoft Ward	Daventry
11	Eastfield Ward	Northampton
	Parklands Ward	Northampton
	Queen Eleanor and Buccleuch Ward	Kettering
	West Hunsbury Ward	Northampton
15	East Hunsbury Ward	Northampton
	Rushden Hayden Ward	East Northants
	St. Michael's and Wicksteed Ward	Kettering
18	Abbey South Ward	Daventry
	Abington Ward	Northampton
	Barnwell Ward	East Northants
	Brixworth Ward	Daventry
	Clipston Ward	Daventry
	Desborough St. Giles Ward	Kettering
	Flore Ward	Daventry
	Harpole and Grange Ward	South Northants
	Irchester Ward	Wellingborough
	Lower Nene Ward	East Northants
	Nene Valley Ward	Northampton
	Silverstone Ward	South Northants
	Slade Ward	Kettering
	Washington Ward	South Northants
West Ward	Wellingborough	
33	Burton Latimer Ward	Kettering
	Ecton Brook Ward	Northampton
	Irthlingborough Waterloo Ward	East Northants
	Kingsley Ward	Northampton
	Stanwick Ward	East Northants

6.30. [Map 4](#) below shows the priority grading for each ward within Northamptonshire for the Flood Map for Surface Water 1 in 200 scenario.

**Map 4: Priority of Wards for Flood Map for Surface Water 1 in 200**



**Fluvial Flood Map Flood Zone 2**

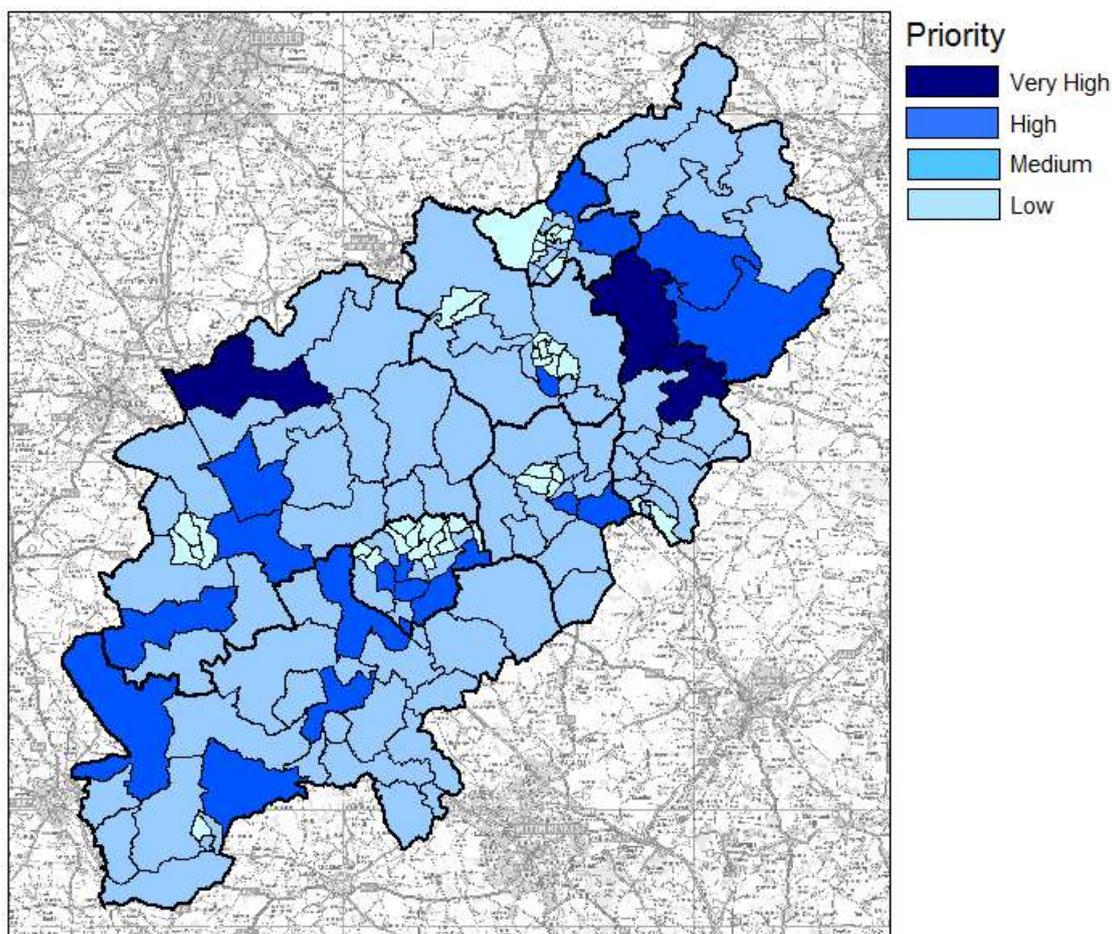
6.31. There are four Very High priority wards in Northamptonshire for the Fluvial Flood Map Flood Zone 2 scenario, as shown in [Table 6.3](#) below.

**Table 6.3 Very High Priority wards for Fluvial Flood Map Flood Zone 2**

Priority	Ward Name	District/Borough
1	Thrapston Lakes Ward	East Northants
2	Thrapston Market Ward	East Northants
	Yelvertoft Ward	Daventry
4	Lyveden Ward	East Northants

6.32. [Map 5](#) below shows the priority grading for each ward within Northamptonshire for the Fluvial Flood Map Flood Zone 2 scenario.

**Map 5: Priority of Wards for Fluvial Flood Map Flood Zone 2**



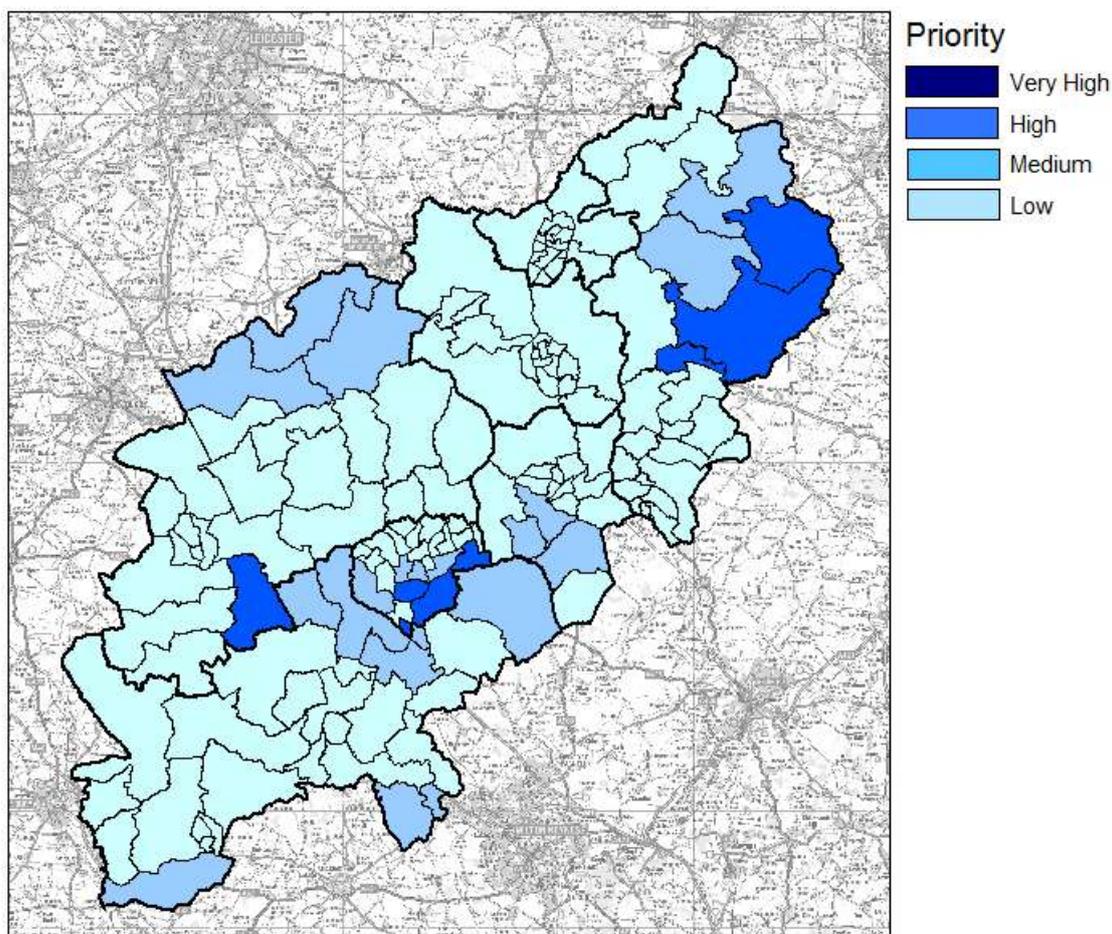
6.33. The assessment of priority for fluvial flood risk is based on the Environment Agency's flood maps. The Catchment Flood Management Plans also provide policy context for the Environment Agency in relation to fluvial flood risk, and can be found at <http://www.environment-agency.gov.uk/research/planning/33586.aspx>.

**Areas Susceptible to Groundwater Flooding greater than 75%**

6.34. There are no Very High priority wards for the Areas Susceptible to Groundwater Flooding greater than 75% scenario.

6.35. [Map 6](#) below shows the priority grading for each ward within Northamptonshire for the Areas Susceptible to Groundwater Flooding greater than 75% scenario.

**Map 6: Priority Assessment for Areas Susceptible to Groundwater Flooding >75%**



### Highest Priority Wards

6.36. In order to determine the overall highest priority wards within the county, taking into account all sources of flood risk, the average priority score for each of the three scenarios above has been calculated for each ward. The resulting scores provide the overall prioritisation.

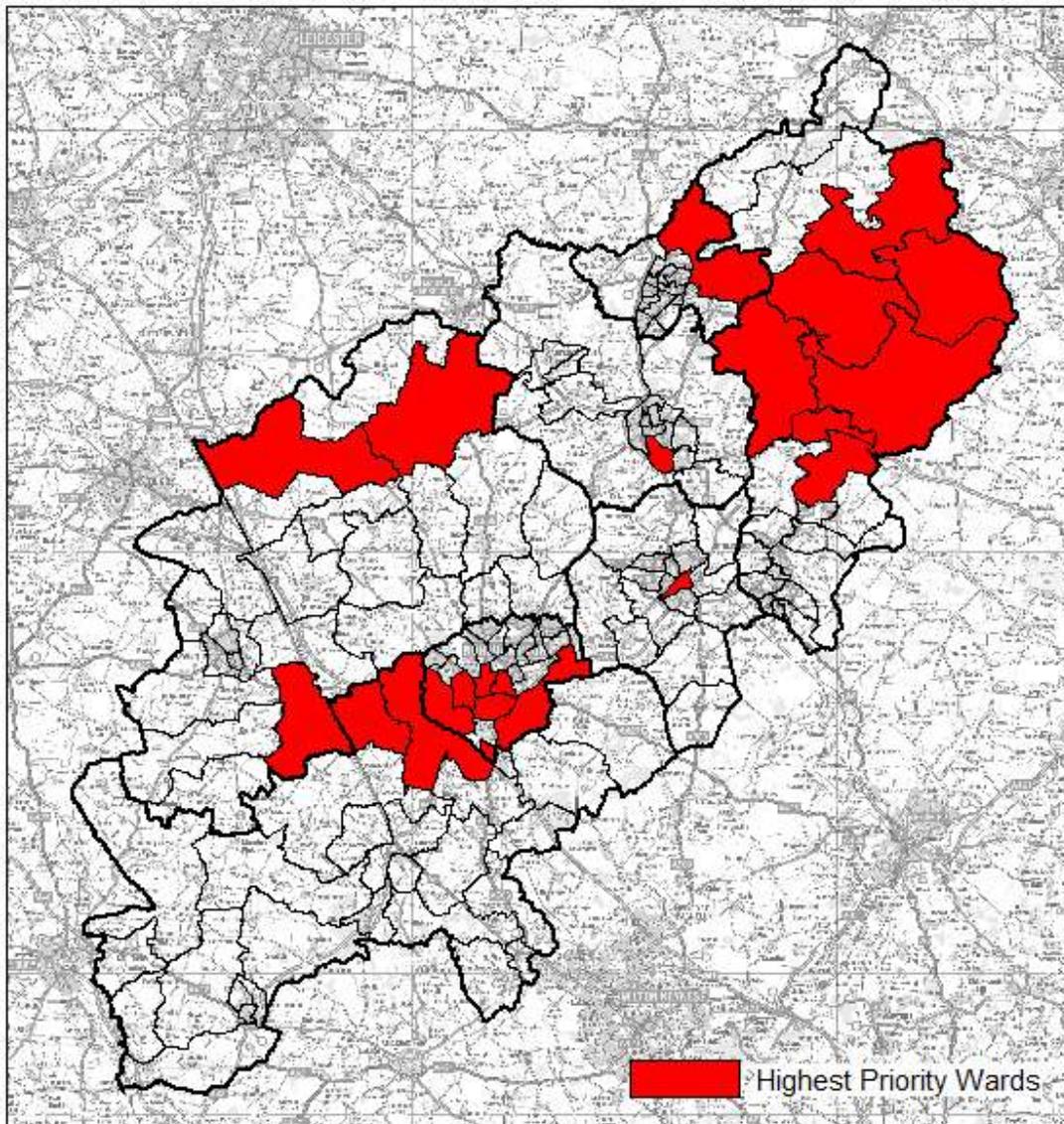
6.37. It is important to remember that this assessment does not account for any flooding which has actually occurred in the past, rather it is based on the theoretic risk of flooding. Therefore there may be wards which have suffered significant flooding in the past (for example as a result of defence failure or poorly maintained drainage) which are not shown to be high priority in this assessment. These locations which have experienced flooding will be considered through the agreed [incident reporting and investigation procedure](#).

**Table 6.4: Highest Priority Wards in Northamptonshire considering all sources of flood risk**

Priority	Ward Name	District/Borough
1	Thrapston Lakes Ward	East Northants
2	Yelvertoft Ward	Daventry
3	Barnwell Ward	East Northants
4	Nene Valley Ward	Northampton
	St. Crispin Ward	Northampton
	Thrapston Market Ward	East Northants
7	Lyveden Ward	East Northants
8	Billing Ward	Northampton
9	Delapre Ward	Northampton

Priority	Ward Name	District/Borough
	Weldon and Gretton Ward	Corby
11	Lower Nene Ward	East Northants
12	St. James Ward	Northampton
13	Harpole and Grange Ward	South Northants
14	Castle Ward	Northampton
15	Weedon Ward	Daventry
16	West Hunsbury Ward	Northampton
17	Swanspool Ward	Wellingborough
18	Oundle Ward	East Northants
19	Clipston Ward	Daventry
	Heyfords and Bugbrooke Ward	South Northants
21	Prebendal Ward	East Northants
	St. Michael's and Wicksteed Ward	Kettering

**Map 7: Highest Priority Wards**



6.38. The following activities, along with those actions set out within the [Action Plan](#), will be given precedence in these wards, which have been classified as the highest priority within the county:

- Data collection and registration of existing assets, particularly focussed on ordinary watercourses and surface water features;
- Assessment of potential flood risk on designated Local Nature Reserves, Local Wildlife Sites and Special Protection Areas;
- Assessment of potential flood risk on designated historic assets;
- Review of flooding hotspots and investigation into the cause of historic flooding along with the assessment of suitable flood mitigation schemes, where considered viable;
- Designation of assets which have a significant flood defence function;
- Establishment of regular, proactive culvert inspection and maintenance regime on council owned assets.

## 7. STRATEGY OBJECTIVES FOR MANAGING LOCAL FLOOD RISK

7.1. This section sets out this Strategy's objectives and how specific actions and measures can contribute to their achievement.

### Local Flood Risk Management Strategy Objectives

1. **Collaborative Approach** – Adopt a collaborative approach to managing local flood risk by working with local partners and stakeholders to identify, secure and optimise resources, expertise and opportunities for reducing flood risk and increasing resilience to flooding.
2. **Local Flood Risk** – Develop a greater understanding of local flood risk by improving the scope of local knowledge and understanding of current and future local flood risks.
3. **Enhance the Natural and Historic Environment** – Adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits and promote the wellbeing of local people.
4. **Preparedness and Resilience** – Reduce the harmful consequences of local flooding to communities and human health through proactive actions, activities and education programmes that enhance preparedness and resilience to local flood risk, and contribute to minimising community disruption.
5. **Flood Risk and Development** – Minimise the increase in local flood risk that may arise from new development by producing guidance, setting standards, promoting the sustainable use of water and supporting the development of local policies and guidance, discouraging wherever possible surface water runoff in new and future developments and where possible influencing or supporting developments that seek to reduce existing flood risk.
6. **Economically Sustainable Approach** - ensure the financial viability of flood related schemes through the development of appropriate policies and assessment tools to ensure that flood risk management measures provide value for money whilst minimising the long-term revenue costs. Seeking to use natural processes where possible or source the costs of any maintenance from the financial beneficiaries of the development.
7. **Riparian Responsibilities** – Encourage flood management activities by private owners of ordinary watercourses and flood defence structures as well as limit the development of constrictions on ordinary watercourses.

7.1.1. It is considered that all of the objectives within this Strategy are compliant with and further support the objectives of the National Flood Risk and Coastal Erosion Strategy. [Table 7.1](#) below provides a summary of the key themes and actions within each of the National Strategy Objectives, and how these are addressed within the Objectives of the Northamptonshire Local Flood Risk Management Strategy.

**Table 7.1: Comparison of National Strategy Objectives with LFRMS Objectives**

National Strategy Objective	Key themes and actions to achieve National Strategy objectives	Consistency with LFRMS Objectives
Understanding the risks of flooding and coastal erosion, working together to put in place long-term plans to manage these risks and making sure that other plans	<ul style="list-style-type: none"> <li>• Estimating risks through assessing data, information, mapping and modelling.</li> <li>• Development of tools and advice, and communicating flood risk information clearly.</li> <li>• Establish and maintain a register of assets and features that help manage flood risks.</li> </ul>	<p><u>2</u></p> <p><u>2</u></p> <p><u>2</u></p>

National Strategy Objective	Key themes and actions to achieve National Strategy objectives	Consistency with LFRMS Objectives
take account of them.	<ul style="list-style-type: none"> <li>• Planning flood risk management activities effectively, by linking with other plans, working across catchments, using RFCCs to coordinate activities, working in partnership with others, promoting the full range of measures such as SuDS.</li> <li>• Ensure value of risk management in rural areas is appreciated.</li> </ul>	<p><a href="#">1</a>, <a href="#">5</a>, <a href="#">6</a></p> <p><a href="#">7</a></p>
Avoiding inappropriate development in areas of flood and coastal erosion risk and being careful to manage land elsewhere to avoid increasing risks.	<ul style="list-style-type: none"> <li>• Working in partnership (especially between LLFA and Planning Authority) to avoid inappropriate building or redevelopment in areas of high flood risk.</li> <li>• Consider FCERM issues in managing land use, and developing areas that are not directly at risk to ensure that risks are not increased elsewhere.</li> </ul>	<p><a href="#">1</a>, <a href="#">5</a></p> <p><a href="#">5</a></p>
Building, maintaining and improving flood and coastal erosion management infrastructure and systems to reduce the likelihood of harm to people and damage to the economy, environment and society.	<ul style="list-style-type: none"> <li>• Provision of funding from central government towards the construction and maintenance of risk management assets, considering alternative options where public funding cannot be justified, and balancing investment in new systems and maintenance.</li> <li>• Seek to provide wider benefits to the natural environment (including water quality, water resources, climate change mitigation, and biodiversity), cultural heritage, tourism, agriculture, economic development and recreation.</li> <li>• Provide support for local solutions and innovation, minimising barriers that may prevent landowners, community groups or individuals taking steps to manage risks.</li> <li>• Use of SuDS in new developments to manage surface water runoff.</li> </ul>	<p><a href="#">6</a></p> <p><a href="#">3</a></p> <p><a href="#">4</a>, <a href="#">5</a></p> <p><a href="#">5</a></p>
Increasing public awareness of the risk that remains and engaging with people at risk to encourage them to take action to manage the risks that they face and to make their property more resilient.	<ul style="list-style-type: none"> <li>• Work in partnership to help communities and individuals take responsibility for their risk, for example by signing up to flood warnings, creating community flood plans.</li> <li>• Encourage homeowners and businesses to better protect their properties.</li> <li>• Promote flood insurance policies.</li> </ul>	<p><a href="#">1</a>, <a href="#">4</a>, <a href="#">7</a></p> <p><a href="#">4</a></p> <p><a href="#">4</a></p>
Improving detection, forecasting and issue of warnings of flooding, planning for and co-ordinating a rapid response to flood emergencies and promoting faster recovery from flooding.	<ul style="list-style-type: none"> <li>• Environment Agency and Met Office to work together to develop and improve the national flood detection and forecasting services provided by the Flood Forecasting Centre.</li> <li>• Environment Agency to develop and improve the flood warning service to include surface water flood risk.</li> <li>• Support recovery after flooding, for example by encouraging planning for flooding, preparing emergency plans through LRFs.</li> </ul>	<p><a href="#">4</a></p> <p><a href="#">4</a></p> <p><a href="#">4</a></p>

## *Objective 1: Collaborative Approach*

**“Adopt a collaborative approach to managing local flood risk by working with local partners and stakeholders to identify, secure and optimise resources, expertise and opportunities for reducing flood risk and increasing resilience to flooding”**

7.1.2. The following activities set out below and listed within the [Action Plan](#) will enable this objective to be achieved:

- Promotion of partnership working;
- Securing and optimising human resources; and
- Public engagement in development and delivery of the strategy.

### Partnership working

7.1.3. The requirement for Lead Local Flood Authorities (LLFAs) to work with all interested parties was initially highlighted in the Pitt Review as Recommendation 15: “Local authorities should positively tackle local problems of flooding by working with all relevant parties, establishing ownership and legal responsibility.” This recommendation was then transposed into the Flood and Water Management Act (the Act).

7.1.4. As well as engaging with local communities and members of the public, it is also important to engage effectively with other Risk Management Authorities. These are defined as:

- The Environment Agency;
- Lead Local Flood Authorities;
- District and Borough Councils (where there is no unitary authority);
- Internal drainage board;
- Water companies; and
- The Highways Authority.

7.1.5. The [Northamptonshire Flood and Water Management Framework](#) was approved in November 2010 and oversees all flood risk management activities within Northamptonshire. It is important to maintain this framework of cooperation between the partners outlined above to ensure that the roles and responsibilities of all stakeholders are fully understood. This partnership approach will ensure the successful delivery of the actions set out in this Strategy. All parties have therefore been invited to contribute to the development of this Strategy.

### Secure and Optimise Human Resources

7.1.6. It is essential that the County Council, as well as the partners and other risk management authorities, increase flood risk management capacity and skills in order to deliver the new responsibilities under the Flood and Water Management Act.

7.1.7. The following skill set already exist with the County Council to varying degrees and need to be developed and maintained:

- Planning knowledge, including the National Planning Policy Framework and associated Technical Guidance;
- Highways drainage;
- Emergency planning;
- Environmental and archaeological expertise; and
- Project management/policy analysis.

7.1.8. A skills audit was undertaken across the county to ascertain what flood risk management expertise exists within the Borough and District councils. There is a wealth of expertise and local knowledge across the county, which is brought together through

the [Flood and Water Management Framework](#). It is essential that these knowledgeable members of staff are retained.

7.1.9. A resource plan has been produced, which outlines the resource implications of the act. The plan emphasises the need to retain existing staff as expertise and local knowledge is imperative. There is a risk that, with the County Council now acting as Lead Local Flood Authority, skills will be lost from some District Authorities.

**Table 7.2: Estimated resource and skills requirements**

<b>New Responsibility/Role Required Within the Council</b>	<b>Estimated Full-Time Equivalents (FTE) Needed</b>
Flood and Water Project Manager (liaison with Districts and Boroughs, Environment Agency, water companies, councillors and elected members)	1.0
Flood investigation officer (responsible for flood investigation reports and flood event recording across Northamptonshire)	1.0 <sup>5</sup>
Determination of Section 23 Consenting and Enforcement under of the Land Drainage Act	Role delegated to the Bedford Group of Drainage Boards
Development of Local Flood Risk Management Strategy, Preliminary Flood Risk Assessment and future stages of the Flood Risk Regulations	Project Manager
Surface Water Management Plan lead officer (responsible for leading on SWMPs within Northamptonshire)	Project Manager
Development of an asset register for Northamptonshire County Council	1.0
SuDS Approval Body (responsible for the approval, adoption and maintenance of SuDS)	5-27 <sup>6</sup>
Funding officer (responsible for managing the funding for local flood risk management within Northamptonshire)	Project Manager
<b>Summary of estimated resources required</b>	<b>3 FTE</b>

7.1.10. Defra, the Environment Agency and local authorities are working together to build the level of knowledge and skills that will help flood risk authorities to carry out their roles and responsibilities as the Flood and Water Management Act is implemented.

7.1.11. Representatives from the County Council attend regional training workshops run by Defra as part of their Capacity Building Strategy. These workshops are aligned with the implementation of various parts of the Act and have assisted with the development of this Strategy.

7.1.12. It is recognised that the understanding of flood risk across the county and skills gaps will be enhanced through partnership working and will be developed through strategic and site specific studies. Over time the County Council will develop a greater understanding of local flood risk. As Northamptonshire achieves a more complete understanding of local flood risk, the strategy implementation will be adjusted accordingly.

<sup>5</sup> Dependent on number of flooding incidents experienced.

<sup>6</sup> Dependant upon the implementation and phasing of Schedule 3 of the Act (Sustainable Drainage), It is estimated that a total workforce of just over 27 members of staff would be required to undertake the entire SAB role for all development with a drainage implication. This is compared to a team of 5 staff required to determine major drainage applications only.

## Public Engagement in Strategy Development and Delivery

7.1.13. There is a formal requirement for stakeholder engagement for much of the work undertaken under the Flood and Water Management Act. The County Council will choose methods and processes of engagement to make them as relevant and effective as possible. There is no single 'right' way to engage, many techniques are appropriate, however the way the County Council will do this will depend on the targeted stakeholder and the particular objectives of any specific consultation. The County Council will seek to structure engagement in a way that will genuinely gauge the views of stakeholders.

7.1.14. Details of engagement are set out in the separate Communication, Engagement and Consultation Strategy document.

### *Objective 2: Local Flood Risk*

#### **“Develop a greater understanding of local flood risk by improving the scope of local knowledge and understanding of current and future local flood risks”**

7.2.1. The following activities set out below and listed within the [Action Plan](#) will enable this objective to be achieved:

- Production of Surface Water Management Plans and other technical flood and water management studies;
- Flood reporting, recording and investigation;
- Raise community awareness;
- Registration of assets and associated maintenance; and
- Data management.

### Surface Water Management Plans

7.2.2. The County Council recognises the value of Surface Water Management Plans (SWMPs) as a tool to identify flood risk from surface water and ordinary watercourses, to assess options to understand the risk (including potential depth and velocity of flooding) and where possible mitigate the risk and prepare an action plan to manage the risk to reduce risk to life and provide costed solutions.

7.2.3. Certain technical flood and water management work already completed in Northamptonshire has identified the key geographical areas that would benefit from the preparation of SWMPs. The following areas in [Table 7.3](#) within Northamptonshire have been, are being or are planned to be assessed as part of a SWMP or similar study:

**Table 7.3: Key Geographical Areas for SWMPs**

<b>Geographic Location</b>	<b>Description of Study</b>	<b>Status of Study</b>	<b>Source of Recommendation</b>
Northampton	Standard SWMP as defined by Environment Agency guidance	Completed, awaiting approval	Northampton Level 2 Strategic Flood Risk Assessment – February 2010 and the Nene Catchment Flood Management Plan – December 2009
Kettering Town	Standard SWMP as defined by Environment Agency guidance, including consideration of impacts of proposed future development	Commenced	Level 1 SFRA for Kettering and Wellingborough – February 2011 and the North Northamptonshire Detailed Water Cycle Strategy – September 2009

<b>Geographic Location</b>	<b>Description of Study</b>	<b>Status of Study</b>	<b>Source of Recommendation</b>
Borough of Wellingborough	Standard SWMP as defined by Environment Agency guidance	Commenced	North Northamptonshire Strategic Flood Risk Management Study – April 2012 and the North Northamptonshire Detailed Water Cycle Strategy – September 2009
South Northamptonshire	Standard SWMP as defined by Environment Agency guidance	Commenced	West Northamptonshire (Daventry and South Northamptonshire) Level 2 Strategic Flood Risk Assessment – June 2009
Daventry District	Standard SWMP as defined by Environment Agency guidance	Commenced	West Northamptonshire (Daventry and South Northamptonshire) Level 2 Strategic Flood Risk Assessment – June 2009
East Northamptonshire	Standard SWMP as defined by Environment Agency guidance	Commenced	Nene Catchment Flood Management Plan – December 2009 and the North Northamptonshire Detailed Water Cycle Strategy – September 2009
Corby Town	SWMP-style study covering all sources of flood risk with the exception of main rivers (except where there is an interaction). The aim is to establish ownership and maintenance regimes and a long-term action plan to manage local flood risk, particularly in higher risk areas.	Commenced	North Northamptonshire Strategic Flood Risk Management Study – April 2012

7.2.4. As part of the development of these plans, consultation with the Environment Agency and the relevant water companies will enable the effective consideration of options for diverting surface water from main sewers, thus providing increased drainage capacity in the combined sewer network. The outputs of the plans will be used to inform development control decisions.

7.2.5. The County Council is the responsible authority for overseeing the production of SWMPs in Northamptonshire. Continued support will be provided to Local Authorities in preparing these plans.

7.2.6. The County Council was allocated £100,000 in 2010 by Defra to develop the SWMP for Northampton, in consultation with key local partners including the Environment Agency, Anglian Water, and Northampton Borough Council. The actions resulting from the have been incorporated into the [Action Plan](#). The actions resulting from the other studies will be incorporated in future updates of the Action Plan once the studies are completed.

## **Flood Reporting, Recording and Investigating**

### **Flood Incident Reporting**

7.2.7. It is vital that members of the public who are affected by flooding are aware of the appropriate authority to contact:

- If the flooding is an emergency: contact Fire and Rescue by calling 999. This service is primarily responsible for saving life. They may also pump out floodwater from your property. During flooding, you should focus on the safety of yourself and others.
- If the flooding is highway related: use the Street Doctor service at <http://www.northamptonshire.gov.uk/en/councilservices/Transport/roads/streetdoctor/Pages/Step1.aspx> to report flooding relating to a highway such as blocked ditches, blocked drains or flooding on a road.
- If the flooding is from a burst water main or sewer flooding: contact your service provider (Anglian Water Services, Thames Water Utilities or Severn Trent Water)
- For all other flooding: use our online report form at <https://northamptonshire.firmstep.com/default.aspx/RenderForm/?F.Name=kJiLadREqsz> to report all other flooding. Please note that this service is not to be used in an emergency situation. We will endeavour to respond to your submission within 21 days.

7.2.8. Our online report form can also be used to tell us about historic flooding that has affected your property or community. If you have photos or videos of flooding please email these to us at [floodandwater@northamptonshire.gov.uk](mailto:floodandwater@northamptonshire.gov.uk).

7.2.9. The County Council as Lead Local Flood Authority is proactive in collating information about flood incidents that occur within the county. A flood incident reporting form is sent to all local authorities to complete in the event of a flooding incident and a monthly reminder has been set up to ensure a continuation of this process. Northamptonshire Fire and Rescue also provide weekly updates on any incidents attended which relate to flooding. News reports and social media are used as alerts to potential flood incidents and also for photographic evidence.

7.2.10. All of the information collated is placed on the database of [historic flood incidents](#), and will alert the County Council to any recurring flooding hotspots.

7.2.11. On receipt of flood incident report forms or other information regarding flood incidents, the content is reviewed and a determination made as to whether any incidents require formal investigation, following the County Council's Flood Investigation Protocol below.

### **Flood Investigation**

7.2.12. The County Council as the Lead Local Flood Authority has a statutory duty to investigate flooding incidents in its area, to the extent that it considers necessary or appropriate. This requirement is set out in Section 19 of the Act.

7.2.13. On becoming aware of a flooding incident, the LLFA must decide whether it is necessary or appropriate to investigate further in order to:

- a) Identify which risk management authorities or individuals have flood risk management functions in respect of the flooding (it could be for example the Environment Agency if it comes from main rivers or the sea); and
- b) Establish whether that authority or individual has responded or is proposing to respond to the flood.

7.2.14. It is not the responsibility of the Investigating Officer to resolve the flooding, however they will investigate the cause and notify any relevant authority. In Northamptonshire, these authorities could include Northamptonshire Highways, the water companies, Environment Agency, borough and district councils, the drainage board or landowners.

7.2.15. Upon learning of a flood event within Northamptonshire the Investigating Officer will follow the established 'Flood Investigations Protocol' whereby it will be determined

whether an investigation should be carried out, taking into account the available resources and significance of the event.

7.2.16. It is therefore essential to determine what is 'necessary or appropriate' in the context of Northamptonshire. A formal flood investigation will generally be carried out if one or more of the following occurs:

- Flooding has affected critical infrastructure for a period in excess of 3 hours from the onset of flooding;
- Internal flooding<sup>7</sup> of one property has been experienced on more than one occasion in the last 5 years;
- Internal flooding of five properties in close proximity<sup>8</sup> has been experienced during one single flood incident.

7.2.17. The investigation will follow the following process:

- Step 1. Flood incident report form received through website (<http://www.northamptonshire.gov.uk/en/councilservices/environ/flood/pages/report-flooding.aspx>).
- Step 2. Review the information provided to determine if the incident meets the threshold for formal investigation. If the incident does not meet the threshold then advice and guidance is provided.
- Step 3. If the incident does meet the threshold, then a site meeting is arranged with the affected community and a data collection process undertaken. This will include any photos, video footage and eyewitness statements.
- Step 4. A draft Flood Investigation Report (FIR) is then written and shared with all relevant Flood Risk Management Authorities (RMAs) for comment and review.
- Step 5. Any necessary revisions are then made to the FIR and published online.
- Step 6. All RMAs and the affected community are notified of the publication.

7.2.18. It is important to note that this is a technical assessment and that it is for the relevant responsible body or persons to assess any recommendations in terms of their legal obligation, resource implications, priority and cost/benefit analysis of undertaking such actions.

7.2.19. Following significant widespread flooding in the county, where a number of incidents meet the thresholds for investigation, the investigations will be undertaken on a priority basis. This will take into consideration factors such as the number of properties affected, the extent, depth and duration of the flooding, the history of flooding, and the impact on infrastructure such as roads.

7.2.20. The 'Flood Investigation Report' will describe the flood incident and aim to determine any contributing factors. The report will explain the roles and responsibilities of those involved, and provide recommendations for future actions. It is important to note that it is for the relevant responsible body or persons to assess each recommendation in terms of the legal obligation, resource implications, priority and cost/benefit analysis of undertaking such action. The recommendations may be included within the Action Plan linked to the Local Flood Risk Management Strategy or in the relevant risk management authority's future work programmes, as appropriate.

7.2.21. The County Council will endeavour to undertake and complete the flood investigation reports within six months of receipt of a flood incident report form; however this may not be possible following extensive flooding.

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<sup>7</sup> Definition of internal flooding: Where water crosses the threshold of a commercial or residential building

<sup>8</sup> Definition of close proximity: Where it is reasonable to assume that the affected properties were flooded from the same source or interaction of sources

## Asset Maintenance

- 7.2.22. As assets age, they are likely to deteriorate and may become less able to perform their original flood risk management function. The impact on flood risk will vary depending on the type of asset. For example road drainage ditches may become overgrown, or drains may silt up, reducing their capacity to carry water and therefore increasing the risk of surface water flooding. Other assets, such as flood defence walls can weaken over time, so that they can no longer hold back flood water.
- 7.2.23. Routine inspection and maintenance can mitigate this risk and extend the lifetime of assets. However without this regular maintenance and a programme of replacement and remediation, the potential failure of assets could increase flood risk. The increase in risk would depend on the significance of the asset and what is protected by the asset.
- 7.2.24. The County Council is responsible for managing all of its own assets. The only flood risk management assets which the County Council is responsible for are [highways drainage assets](#). In addition, the County Council has powers to undertake works to maintain non-County Council owned surface water and groundwater related flood risk assets, and charge the costs of this work to the [riparian owner](#) of the asset. Borough and District Councils have the same powers relating to maintenance of assets on ordinary watercourses. However the focus remains on providing these owners with advice to enable them to maintain their own assets.
- 7.2.25. All risk management authorities within Northamptonshire have a responsibility to maintain their own assets to ensure that flood risk within the County is not increased. Environment Agency manages approximately half of the flood risk assets on main rivers. Local authorities, internal drainage boards and individual owners and businesses are responsible for the others, and the Environment Agency encourages these owners to maintain their flood risk assets to the right standard. The Environment Agency has an Asset Management Plan which explains their approach to the management of assets that reduce the risk of flooding from main rivers. For more information see the Environment Agency's Asset Management pages at <http://www.environment-agency.gov.uk/research/policy/132944.aspx>.
- 7.2.26. A full inventory of the County Council's gully (artificial channel serving as a gutter or drain) assets was initiated in 2008. Once each gully had been cleaned, the grid references were plotted using hand held global positioning system (GPS) devices, along with information regarding defects and any action to be taken.
- 7.2.27. In the first two years of cleansing and data gathering, the County Council identified an additional 16,600 gullies not thought to be previously in existence. In the third year a proactive gully maintenance programme was developed. Analysis of the data collected allowed prioritisation of the gully cleansing programme by classifying gullies into a high, medium or low risk of flooding. The approach ensures that high and medium risk gullies are cleaned more often than those classified as low risk. Year on year records are being stored to allow the cyclical maintenance programmes to be further developed. In addition, "hotspots" can be identified for further investigation and action. This cyclic cleansing and data collection process ensures a proactive approach to maintenance, prioritising high risk locations whilst delivering efficiency savings.
- 7.2.28. The County Council's assets which have been identified within the [formal flood investigations](#) as posing an increased risk of flooding due to failure or lack of maintenance, will be added to the County Council's asset maintenance regime for more proactive maintenance and/or replacement.

7.2.29. The recommendations of the formal flood investigations also include actions for other authorities, organisations or individuals to improve maintenance of their assets, where necessary.

7.2.30. The County Council has produced guidance for riparian owners, which includes advice on maintenance of assets, which can be found at <http://www.northamptonshire.gov.uk/en/councilservices/Environ/flood/Pages/Roles-and-responsibilities.aspx>.

### Asset Register

7.2.31. Under Section 21 of the Act, each Lead Local Flood Authority in England and Wales has a statutory duty to establish and maintain:

- A register of structures or features which, in the opinion of the authority, are likely to have a significant effect on a flood risk in its area; and
- A record of information about each of those structures or features, including information about ownership and state of repair.

7.2.32. Work is well progressed on the asset register and at present the database contains standardised asset data acquired from the:

- Environment Agency;
- Highways Authority;
- Borough and District Councils;
- Canal and River Trust (formally British Waterways);
- National Rail;
- Anglian Water;
- Thames Water; and
- Severn Trent Water.

7.2.33. Additional flood risk asset information has been identified through reviewing technical flood and water related documents that have been undertaken across the county (see [Appendix 4](#) for a full list of documents reviewed).

7.2.34. Sustainable Drainage Systems (SuDS) act as flood risk management assets and therefore the location, information regarding ownership and state of repair should also be included in the asset register. Assets on ordinary watercourses will also be identified and included in the register of assets. Due to the size of the county and the number of ordinary watercourses throughout, this will have to be undertaken on a priority-based approach, as set out in [Section 6](#).

7.2.35. The asset register will be made available for inspection at all reasonable times, including inspection by the public. To book an appointment to review the asset register, contact the Flood and Water Management team by email:

[floodandwater@northamptonshire.gov.uk](mailto:floodandwater@northamptonshire.gov.uk) or by post:

Flood and Water Management Team  
Planning Services, Room 271  
Northamptonshire County Council  
County Hall  
Northampton NN1 1DN

7.2.36. It is envisaged that the information contained within the asset register will build up over time as and when new and improved data is provided. This will include when new developments are constructed which incorporate flood risk assets within their design, for example SuDS, flood storage reservoirs and new environmental designations that contribute to flood risk reduction.

## Data Management Protocols

7.2.37. The County Council has established protocols for requesting and sharing information with flood risk management partners, and has also entered into confidentiality agreements with certain organisations. A protocol for the secure storage of data and routine updates has also been established. For more information see [Appendix 9](#).

### *Objective 3: Enhance the Natural and Historic Environment*

**“Adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits and promote the wellbeing of local people”**

7.3.1. The following activities set out below and listed within the [Action Plan](#) will enable this objective to be achieved:

- Undertake Strategic Environmental Assessment, Habitats Regulation Assessment and Water Framework Directive Compliance Check;
- Explore opportunities to provide additional flood storage attenuation;
- Encourage natural flood risk management;
- Evaluation of impact of flooding on historic assets;
- Evaluation of impact of flooding on environmental assets;
- Provide blue and green infrastructure;
- De-culvert in appropriate locations where improvement is required;
- Review land management methods;
- Increase tree coverage in appropriate locations;
- Promote Catchment Plans;
- Promote and support the Nene Valley Nature Improvement Area.

7.3.2. It is important that actions taken forward from this Strategy focus on achieving wider environmental benefits, whilst balancing social, economic and environmental aims/objectives to develop sustainable flood risk management measures that deliver wider benefits.

7.3.3. The implementation of flood risk management options and measures within Northamptonshire provides a significant opportunity to improve the natural, rural and built environment across the county. The Flood and Water Management Act states that the local Strategy must specify how it will contribute to the achievement of wider environmental objectives and sustainable development.

7.3.4. The Act lists “maintaining or restoring natural processes” as a way of managing flood risk, and permits the designation of natural features that can reduce this risk. The Act also provides powers for the Environment Agency, Local Authorities and Internal Drainage Boards to manage flooding in the interests of nature conservation (including the conservation of the landscape), preservation of cultural heritage, and people’s enjoyment of the environment generally.

7.3.5. This Strategy will contribute to the achievement of wider environmental objectives in the following ways:

- Encouragement of source control measures (such as Sustainable Drainage), which can help improve water quality through reducing runoff and therefore reducing diffuse pollution entering watercourses and drainage systems. This could also potentially help to meet Water Framework Directive targets for water quality within Northamptonshire, providing there are no associated flood risk implications;
- Promotion of Water Framework Directive targets and River Basin Management Plan actions, to ensure no deterioration of surface water and groundwater and the

protection of all water bodies and protected areas with the implementation of any new flood risk management schemes;

- Enhance biodiversity and habitat creation within any future capital schemes, such as SuDS or flood storage areas;
- Assess the positive, neutral and negative impacts of flooding on historic and environmental assets. This will allow for potential improvements to be identified for these assets in relation to flood risk management works;
- Help to meet Biodiversity Action Plan (BAP) targets to ensure an increase of habitat through local flood risk management works. As a flood authority, The County Council has a duty (under Section 40(1) of the Natural Environment and Rural Communities Act 2006) to conserve biodiversity within Northamptonshire. The existing BAP habitats within Northamptonshire and the mapped area of habitat opportunity for the River Nene and River Ise corridors is identified on [Map A9](#), and further details can be found at <http://northamptonshirebiodiversity.org/habitat-opportunity-map.htm>;

### Undertake a Strategic Environmental Assessment, Habitat Regulation Assessment and Water Framework Directive Compliance Check

7.3.6. Given the scope and content of this local Strategy, Defra has determined that a statutory Strategic Environmental Assessment (SEA) is required to be prepared by the County Council to support this Strategy. A SEA is undertaken to ensure that any environmental consequences are considered during the preparation of the local Strategy.

7.3.7. A Habitat Regulations Screening Assessment (HRA) has also been undertaken to assess the impacts of implementing the Strategy policies and measures on European Sites within 10km of the county.

7.3.8. Both the HRA and the SEA were developed alongside this Strategy and have therefore been used to inform sustainable decision making throughout, including the development of social, economic and environment objectives, and the consideration of alternative options.

7.3.9. In assessing this Strategy for Water Framework Directive (WFD) compliance, the measures proposed are unlikely to have environmental effects and will not cause deterioration to water bodies. However, actions identified may require site specific environmental assessment to identify any potential environmental effects. The policies and proposals throughout this Strategy and specifically related to this objective, will actively help to prevent harm to water bodies and will encourage future improvement where possible for example through restoration or improving the ecological status of water bodies. The County Council, along with the borough and district councils, is one of the key partners working with the Environment Agency on the update of the [River Basin Management Plans](#). The River Basin Management Plans, Catchment Flood Management Plans and Water Framework Directive compliance checks can be found in [Appendix 6](#) of this Strategy and [Map A10](#) illustrates the current ecological status of specific water bodies within Northamptonshire.

### Additional Flood Storage Attenuation

7.3.10. Within the technical flood and water management documents that have been produced to inform planning policy development within Northamptonshire, additional flood storage and attenuation has been highlighted as a common theme to manage the control of flood risk related to development. The Environment Agency has recently (2011) produced the Nene Flood Storage Study, which reviews opportunities for additional flood storage areas within the River Nene catchment.

7.3.11. Flood attenuation areas are designed to reduce flooding, by storing runoff during the peak flow and releasing it at a controlled rate during and after the peak flow has passed.

- 7.3.12. Strategic flood storage areas should be located upstream of urban areas so as to provide multiple flood risk management benefits within a catchment. One of the main advantages of flood storage areas is that flood attenuation generally extends downstream, thus flood alleviation is not just a localised benefit. Flood storage areas can be used as a high level strategic solution to reduce the increased runoff from new development in the upper end of the catchment and mitigate the flood risk to existing communities downstream.
- 7.3.13. At a local level, flood storage areas could benefit the environment through biodiversity enhancement and habitat creation, therefore contributing to the requirements of the [Water Framework Directive](#). Flood storage often provides amenity improvement and can be inked into the green infrastructure network. There may be opportunities within minerals and waste development and action plans to use mineral extraction sites to store flood water.

### Natural Resilience

- 7.3.14. The County Council continues to promote the concept of Natural Resilience and has strengthened this position by recently producing the document entitled '[Towards a Naturally Resilient Northamptonshire](#)', which supports the umbrella policies of statutory and non-statutory plans.
- 7.3.15. The main thrust of this document's approach is the relationship between biodiversity and adapting to climate change, and the economic benefits that the use of 'natural interventions' such as reinstatement of floodplains, tree planting, green roofs, and sustainable drainage systems can bring to Northamptonshire.
- 7.3.16. Linkages are made with the County Council's new responsibilities regarding flood and water management under the Flood and Water Management Act (2010) and the opportunities for more natural flood attenuation schemes rather than more expensive hard engineered defences.

### Evaluation of impact of flooding on historic assets

- 7.3.17. The County Council is planning to undertake an assessment of the potential impacts that flooding may have on various types of designated historic assets. The results will assist the [prioritisation methodology](#), in enabling designated assets to be categorised based on their vulnerability to flood risk, and will also assist in the assessment of the potential impacts that flood-related development could have on the historic environment. This study will be undertaken in consultation with English Heritage.

### Evaluation of impact of flooding on environmental assets

- 7.3.18. The County Council has commissioned the Wildlife Trust to undertake a study to assess the potential impacts that flooding may have on designated Local Nature Reserves, Local Wildlife Sites and the Special Protection Area. This assessment is particularly important for environmental assets, because flooding may be detrimental to some sites but beneficial or even vital for other sites. The results of the assessment will be used to improve the [prioritisation methodology](#) and will assist in the assessment of the potential impacts flood-related development could have on the natural environment.

### Provide Blue and Green infrastructure

- 7.3.19. Blue corridors are a component of green infrastructure, adjacent to watercourses or along key overland flow paths, which are designated for the primary purpose of conveying water, particularly in times of flood. They also provide a wide range of additional functions such as amenity and biodiversity conservation.

7.3.20. Working closely with key partners to ensure careful land-use planning and the gradual reinstatement of green open spaces (within existing and new developments), together with the introduction of wetlands and woodlands throughout Northamptonshire, could help reduce flood risk and promote the requirements of the [Water Framework Directive](#). It is essential that access for maintenance and operation of flood risk assets and watercourses is not restricted as a result of the implementation of any blue and green infrastructure.

7.3.21. It is important that opportunities are sought when new development and redevelopment opportunities arise, and that areas of floodplain reinstatement in conjunction with green and blue infrastructure are identified and realised. This will not only have flood risk benefits, but also ecological, environmental and recreational improvements. There is a significant opportunity to use existing and proposed green and blue infrastructure corridors as integrated sustainable drainage systems and it is important raise awareness that these areas will be designed to flood from time-to-time. This will be further explored within the Northamptonshire specific Sustainable Drainage guidance to be produced by the County Council. See [Objective 5](#) for further information.

### De-Culverting

7.3.22. Where practical and specifically linked to new and re-developed areas, the County Council when working with its flood risk management partners will endeavour to promote the de-culverting of long stretches of ordinary watercourses and restore them to open channels. This will not only increase conveyance, reduce risk of blockages and minimise the need for trash screens, but in most cases, will also lead to the environmental enhancement of the area. A specific policy has been set relating to the culverting of ordinary watercourses, and can be found in the [policy section](#) below.

7.3.23. Alternatives to culverting include:

- **Construction of a bridge** – bridges have a much lower impact on the hydraulics and ecology of the watercourse than a culvert, as in general the bed and often the banks of the watercourse can remain undisturbed. For bridges, the fewer piers (supports) within the watercourse itself the lesser the impact on the flow and ecology;
- **Diverting the watercourse** – this option has its own disadvantages and is likely to be significantly more expensive, but diverting a watercourse can provide opportunities for environmental and hydraulic improvement; and
- For small watercourses, it may be possible to **construct a ford**.

7.3.24. The impacts of culverting an ordinary watercourse have been summarised in Table 7.4 below. These impacts need to be considered, and where possible mitigated for, when designing a culvert.

**Table 7.4: Impacts to be considered in the culvert design**

Aspect affected	Description of impact
Ecology	Culverts can be impassable to certain species of riverine fauna and can create barriers to the movement of fish. Culverting results in the loss of natural in-stream and bank side habitats through direct removal and loss of daylight.
Pollution	In urban areas, culverted ordinary watercourses are often highly polluted due to misconnected foul sewers, overflows from blocked sewers or discharges of contaminated surface water.

Aspect affected	Description of impact
Morphology	Culverted sections may create or exacerbate downstream or upstream bank and bed erosion or promote sediment deposition, as a result of altered water velocities and disruption to the natural transport of sediment.
Restoration	Culverts can hinder future restoration options. This is particularly significant where urban development results in the burial of once open ordinary watercourses beneath housing or commercial centres, or where new development is placed on top of existing culverted ordinary watercourses, which otherwise might be available for restoration.
Landscape and amenity	Culverting of urban waters leads to the loss and degradation of distinctive components of the local landscape. Culverting leads to the loss of green amenity space along river banks and reduced access for recreational opportunities such as angling, walking or canoeing.
Health and safety	Confined spaces.

7.3.25. In cases where culverting is unavoidable, it is necessary to seek consent from the Environment Agency for main rivers and from the Internal Drainage Board (IDB) on behalf of the Lead Local Flood Authority for ordinary watercourses, in order for culverting to go ahead. The Environment Agency, IDBs and LLFA will scrutinise design submissions carefully to ensure all steps have been taken to reduce environmental degradation (or mitigate it) and to reduce the risk of flooding as well as assess any requirements under the [Water Framework Directive](#). There will be situations where the implementation of culverting is unavoidable, for instance short lengths of culvert may be required for access.

7.3.26. Detailed guidance on the design of culverts can be found in [Culvert design and Operation guide \(CIRIA, 2010\)](#) amongst other guidance.

#### Review Land Management Methods

7.3.27. Farmland soil can be compacted or vegetation removed either seasonally by ploughing, or temporarily as topsoil is stripped to allow for development, so that rainwater is no longer able to soak into the ground. Instead the rainwater flows over the land, carrying soil with it to create a “muddy flood”. Land management techniques can prevent soil from getting compacted and reduce the risk of flooding. Flooding from farmland may also happen as a result of drainage ditches becoming blocked. The farmland itself can be damaged by flooding, both in the short term when flood water destroys crops, and in the longer term if flooding results in waterlogged land or washes away the topsoil which can take years to replace.

7.3.28. The County Council will work with the National Farmers Union through established groups such as the Catchment Sensitive Farming Partnership and the Nature Improvement Area land advisor. They will support the Environmental Stewardship Schemes working with key partners, including; the Environment Agency, the Wildlife Trust and the River Nene Regional Park to ensure surface water runoff is reduced where possible.

7.3.29. It has been demonstrated that surface water runoff can be reduced through the implementation of certain agricultural practices; including ploughing fields in a

perpendicular direction to the slope of the land, reducing the effect of channelling of water over the land when it rains and through increased planting.

7.3.30. Farmers in receipt of Common Agricultural Policy (CAP) payments are required to carry out a Soil Protection Review which should identify any problems with soil erosion and runoff and help identify solutions to the problem. However, poor soil management is not always the cause of runoff flooding. Heavy rain can cause runoff even where soil is in good condition..

7.3.31. If you are affected by flooding from agricultural land, you should in the first instance raise the problem with the farmer concerned.

### Increased Tree Coverage

7.3.32. An extremely important land management technique, which should be promoted in [high priority wards](#), is the increase of tree coverage. Conserving and restoring native woods and creating new ones, can improve water quality, reduce localised flooding, and may alleviate the effects of larger floods. It is important to ensure however, that planting does not impede flood flow routes. It is also essential that access for maintenance and operation of flood risk assets and watercourses is not restricted as a result of increased tree planting.

7.3.33. A wide range of research exists on how trees and woods affect various aspects of water management. Trees affect water quality and quantity in the following ways:

- They intercept rainfall with their leaves, branches and trunks and take up water through their roots;
- They stabilise soil with their roots, increase the amount soaking into the soil ('infiltration') by increasing soil organic matter and improving soil structure;
- Provide shade for fish;
- They reduce the amount of water running off the surface. This helps reduce soil erosion, washing of sediment and other contaminants into water, and the effects of flooding; and
- They take up nutrients and some pollutants from the soil, and can therefore buffer areas of water from the effects of intensive land use.

7.3.34. Trees can however drop branches and leaves, which can cause blockages to watercourses and drainage systems, they can also be blown over and damage flood banks. Therefore careful consideration needs to be given to the location of planting and management/maintenance techniques.

7.3.35. It is recognised that poorly planned and managed forests can exert a pressure on the water environment, while the right tree planted in the right place can protect waters and help to meet the objectives of the [Water Framework Directive](#). In a recent review entitled Woodland for Water, jointly funded by Forestry Commission England and the Environment Agency, Forest Research and ADAS (an agricultural and environmental consultancy) considered the key issues relating to woodland and the Water Framework Directive. The aims of the review were to:

- Collate existing scientific research to increase understanding of how woodland can be used to improve water quality and water management to help meet Water Framework Directive objectives;
- Provide a robust evidence-base for developing woodland and environmental policies; and
- Review relevant studies that could inform the development of a cost-benefit analysis of proposed measures.

7.3.36. An additional element was a map-based case study to assess how woodland creation could be better targeted within catchments. The reports and case study can be found on the Forestry Commission website at <http://www.forestry.gov.uk/fr/woodlandforwater>.

7.3.37. The East Midlands Woodland Opportunity Guidance report was informed by the East Midlands Regional Landscape Character Assessment (EMRLCA). It puts in place guidance to help deliver the Regional Forestry Framework targets, provides a broad strategic direction of travel for woodland planting in the region and has potential to be used to inform woodland grants and stewardship schemes. The report maps the broad woodland strategy for each Regional Landscape Character Type. The report and a map showing the results of the associated Woodland Opportunity Mapping study can be found on the Natural England website at [http://www.naturalengland.org.uk/regions/east\\_midlands/ourwork/eastmidswoodlandopp\\_guidance.aspx](http://www.naturalengland.org.uk/regions/east_midlands/ourwork/eastmidswoodlandopp_guidance.aspx).

7.3.38. It is essential that the County Council continues to work with the Environment Agency, Woodland Trust, the Forestry Commission and the Wildlife Trust to influence land owners and secure separate funding streams for tree planting in the flood plain and to link this to areas of habitat creation opportunity.

### Promote Catchment Plans

7.3.39. The River Nene Regional Park (RNRP), in Partnership with the County Council and numerous other partners, are hosting the Nene Catchment Pilot as one of 15 projects in the country in addition to the existing 10 being hosted by the Environment Agency. The key aim of this pilot is to inform the second phase of the Anglian Region River Basin Management Plan (due for completion in 2015).

7.3.40. The pilot project will provide an understanding of the problems in each catchment, set out a vision, outline actions required and set out a commitment from partners to deliver these actions.

### The Nene Valley Nature Improvement Area

7.3.41. The Nene Valley Nature Improvement Area (NIA) covers an area of 41,350 hectares in the centre of England, and contains a fragmented ecological network of statutory and non-statutory nature sites, including the Upper Nene Valley Gravel Pits (a Special Protection Area and a Site of Special Scientific Interest). There are many pressures on the NIA, including from built development, increased inappropriate public access, and competition for water resources.

7.3.42. The aim of the Nene Valley NIA is to achieve a step-change in the mechanisms for delivering nature conservation and to create a resilient ecological network in the Nene Valley, through five key objectives:

- Growth and development will support and benefit the natural environment resulting in a sustainable funding source and delivery of improvements to the ecological network.
- Enhance awareness of, access to and benefits from the Nene Valley for growing local communities in a sustainable and sympathetic way, while ensuring that the designated sites at the core are brought into/remain in favourable condition.
- Improve ecological status of the river and enhance ecosystem service provision.
- Through effective engagement with farmers and landowners maintain, restore and create BAP habitats and implement sustainable land management practices to strengthen the ecological network.

7.3.43. The NIA partnership staff includes: a Natural Development Officer, employed by the Wildlife Trust but based within the County Council; a River Restoration Advisor, employed by the River Restoration Centre (at Cranfield University), hosted by RNRP; a

Land Advisor, employed by and based with the Wildlife Trust; and a post-Doctoral researcher at the University of Northampton.

7.3.44. These staff contribute to the existing resource and expertise within Northamptonshire, and work in partnership to achieve the requirements set out by the Water Framework Directive.

7.3.45. River Restoration Working Group has been set up to guide, focus and steer the work required to deliver the third objective of the Nene Valley NIA (to improve the ecological status of the River Nene and its tributaries and to enhance ecosystem provision). The key elements of the work are the assessment of the watercourses' geomorphology and habitat, the creation of restoration strategies for key areas and the completion of ten restoration projects. The membership of the River Restoration Working Group includes representatives from the River Restoration Centre, River Nene Regional Park, Wildlife Trust of Bedfordshire, Cambridgeshire & Northamptonshire, the Environment Agency, Northampton Borough Council, Peterborough City Council and Northamptonshire County Council.

7.3.46. Local Nature Partnerships (LNPs) are partnerships of a broad range of local organisations, businesses and people who aim to help bring about improvements in their local natural environment. LNPs work strategically to help their local area manage the natural environment. They aim to make sure that its value, and the value of the services it provides to the economy and the people who live there, is taken into account in local decisions. In particular, LNPs have a role in coordinating closely with Local Enterprise Partnerships to help deliver sustainable growth.

7.3.47. Northamptonshire's Local Nature Partnership was established in 2012 and oversees the delivery of the NIA. Whilst the County Council's document "Towards a Naturally Resilient Northamptonshire" provides the framework for their transformational environmental programme, which has a wide range of strategic objectives, it was agreed that the LNP would focus on ten key objectives at the outset. The Integrated Catchment Plan provides a key mechanism to deliver these objectives. The priorities for Northamptonshire LNP are:

- Nene Valley NIA;
- Major economic projects (opportunities to influence investment in environmental proposals for major development);
- Natural Flood Attenuation pilot project;
- Destination River Nene/Sustainable Tourism;
- State of the Environment Report for Northamptonshire (public-facing document highlighting the work of the LNP and importance of environment and ecosystem services);
- Water Framework Directive (encourage development of schemes);
- Trees/Rockingham Forest for Life Project.

7.3.48. By 2025, the Rockingham Forest for Life will be nationally recognised as an exemplar climate change initiative for the regeneration of the Rockingham Forest. It will enhance the natural and cultural environment, reinforce ancient woodlands, capture carbon, link fragmented sites and create wildlife corridors to provide a sustainable landscape for all to enjoy.

7.3.49. The regeneration of the Rockingham Forest will raise awareness of a wide range of environmental and related issues and be fully supported locally. It will be an innovative and purposeful means of bringing businesses and communities together around a common cause. It will make the area more resilient and contribute to it being one of the most attractive landscapes in England to live in, work in and visit."

7.3.50. The key outcomes for the project are that:

- Businesses and communities see themselves as part of the local solution to a global issue;
- Ancient Woodlands are reinforced and carbon is captured to mitigate climate change;
- Fragmented sites are linked and wildlife corridors created;
- Employment in traditional woodland based and land management jobs is increased and the local economy is more prosperous as a result;
- More leisure, recreational and educational activities have increased green tourism for positive economic and social gains;
- Eighty hectares per year over an initial fifteen years;
- Enhance the health and well being of local communities.

#### *Objective 4: Preparedness and Resilience*

**“Reduce the harmful consequences of local flooding to communities and human health through proactive actions, activities and education programmes that enhance preparedness and resilience to local flood risk, and contribute to minimising community disruption”**

7.4.1. The following activities set out below and listed within the [Action Plan](#) will enable this objective to be achieved:

- Active enforcement, maintenance and inspection;
- Encourage flood risk management works;
- Improve emergency planning, response and recovery to flooding;
- Improve public awareness and understanding of flooding and flood risk management;
- Promote flood resilience and property level protection;
- Develop a flood risk information pack for self-help for home owners, community facilities and businesses;
- Continue to support local communities to develop community flood plans to protect residential and commercial properties, community facilities and amenities, and promote the community flood warden scheme; and
- Promote the take up of flood protection insurance.

#### **Active Enforcement, Maintenance and Inspection**

7.4.2. Active regulation and enforcement will be undertaken by the County Council when considered necessary to ensure the free flowing movement of water and to remove obstruction.

7.4.3. This will be supported by the investigation of significant flooding incidents to identify causal factors and where appropriate undertake the necessary enforcement or corrective action.

#### **Flood Risk Management Works and Incidental Flooding**

7.4.4. LLFAs have powers to undertake works to manage flood risks from surface runoff and groundwater. Powers to undertake works on ordinary watercourses remain with the relevant Local Authority or Internal Drainage Board (but all works must be consistent with this Strategy). Powers to undertake works on main rivers remain with the Environment Agency.

#### **Improve Emergency Planning, Response and Recovery to Flooding**

7.4.5. Emergency Planning and the related response to and recovery from flood events are a key element to local flood risk management. Emergency Planning is quite simply an activity intended to prevent and reduce the disruption and harm to communities from both natural and man-made hazards.

7.4.6. The County Council's Emergency Planning Team:

- Provides a planning, training and response service to all local authorities in Northamptonshire to facilitate effective co-ordinated action in an emergency;
- Provides advice on the production of community flood plans and the promotion of the flood warden scheme;
- Is the coordinating authority for the Northamptonshire [Multi-Agency Flood Plan](#); and
- Takes the lead role, on behalf of the County Council, in co-ordinating the response of the local authority in supporting the emergency services and other agencies for the benefit of those people who live and work in and visit Northamptonshire.

7.4.7. Local authorities are defined as category one responders under the [Civil Contingencies Act \(2004\)](#) and therefore have an important role to play in emergency planning and flood response and recovery. The Civil Contingencies Act (2004) requires category one responders to have plans in place to respond to emergencies and the most relevant plan in Northamptonshire is referred to as the Multi Agency Flood Plan.

7.4.8. The Northamptonshire Multi-Agency Flood Plan is owned by the Northamptonshire Local Resilience Forum, but is maintained and updated by the County Council. The plan does not include flood risks from foul sewage, burst water mains, canals, private lakes, or reservoir dam failure, but does include all river, surface water and groundwater flooding. Reservoir dam failures are covered by separate plans and arrangements.

7.4.9. In specific flood risk areas, the Environment Agency issues flood warnings for river and coastal flood risk to those registered on the [Flood Warnings Direct](#) system. There is also an [online service](#) that shows the current flood warning situation in England and Wales. It is essential that those properties at risk understand this risk and are encouraged to sign up to the Environment Agency's Flood Warning Service.

7.4.10. It is important that this flood warning system informs the emergency planning process, to ensure that communities and responders are able to react to flood warnings in a timely and effective manner. Improving the emergency planning procedures in areas at risk from surface water flooding will help to ensure the safety of people, property and community facilities by ensuring that necessary plans are established.

### Improve Public Awareness and Understanding of Flooding and Flood Risk Management

7.4.11. Community resilience is about communities using local resources and knowledge to help themselves during an emergency in a way that complements the local emergency services. Communities will be better prepared to cope during and after a flooding emergency if everyone works together using their local knowledge. Identifying and planning for the risks that may be encountered during a severe flood could help in reducing the potential impact on individuals and the wider community. Being prepared and able to respond to an emergency can also help communities recover more quickly.

### Community Flood Plans

7.4.12. Working together as a community or group to complete a Community Flood Plan will help them respond quickly when flooding happens. It can help them decide what practical actions to take before and during a flood, helping reduce the damage flooding can cause. The plan should also identify vulnerable people within the community that would need assistance in the event of a flood.

7.4.13. The community flood plan will also provide practical steps that can be taken to inspire and involve other residents within the community to work together to improve their knowledge of the risks of flooding and how to deal with flooding incidents. The County Council can provide help and support in how develop these for your community.

## Community Flood Wardens

7.4.14. Community Flood Wardens are volunteers who help ensure the Environment Agency flood warning messages reach residents. They also act as the 'eyes and ears' of the community by updating the Environment Agency, the County Council and Emergency Services about the situation on the ground. If you would like to become a Flood Warden or would like more information please contact the County Council.

## Defra Community Resilience Pathfinder Scheme

7.4.15. The Defra Community Resilience Pathfinder Scheme is a project which the County Council is undertaking, funded by Defra. The project aims to facilitate community-led improvements in resilience and preparedness amongst communities who are at risk of flooding in Northamptonshire. The County Council intend to achieve this by developing, piloting and evaluating a flood resilience toolkit that is adaptable to different communities. The toolkit will:

- Create awareness and understanding about flooding, helping community leaders to engage and involve as many members of their community as possible;
- Identify and explore resilience solutions, helping to identify which ones are appropriate for their community;
- Provide information on how to prepare for, respond to and recover from flooding incidents, enabling communities to work together, and
- Instruct communities on how to piece together the above into a workable plan.

7.4.16. The toolkit will bring together a host of information and activities into an online resource. It will function as an intuitive tool guiding communities through a process of understanding floods to taking action, also providing supportive material and advice on engaging others, accessing resources and pulling work together into a manageable plan. It will also function as a reference library on all helpful flood-related information.

## Additional Community Resources

7.4.17. A number of downloadable resources online are already available to encourage communities to take steps to prepare for an emergency themselves and to think about the risks they face. These include:

- [The Environment Agency's Make a Flood Plan](#)
- [Strategic National Framework on Community Resilience](#)
- [Preparing for Emergencies – Guide for Communities](#)
- [Community Emergency Plan Toolkit](#)
- [Community Emergency Plan Template](#)

## Promote Flood Resilience and Resistance Measures and Property Level Protection

7.4.18. It is recommended that a general approach to improving community resilience is adopted across Northamptonshire and particularly in wards that have been identified as being a high priority in the local assessment of flood risk, set out in [Section 6](#) of this Strategy. This should include the assessment of any potential flood alleviation schemes that may be required, the encouragement of property resilience through the installation of individual property protection measures, such as the use of flood gates and air brick covers, as well as a general increase in awareness and preparedness for a flood event.

7.4.19. Flood-resistant construction prevents the entry of water or minimises the amount of water that may enter a building where there is flooding outside and therefore relies on the operational deployment of flood defences at the property scale. These measures rely on the availability of a reliable flood forecasting and warning system, and well established mobilisation and closure processes. More information on different types of resilience measures is provided in [Appendix 8](#) of this Strategy.

7.4.20. There are a great number of suppliers that can provide property level flood alleviation products and these can be found on the [Blue Pages website](http://www.bluepages.org.uk)<sup>9</sup>. This is an independent directory of flood protection products and services, put together to advise and inform on what is available to protect homes and businesses against flooding:

<http://www.bluepages.org.uk>.

7.4.21. The Department for Work and Pensions provide crisis loans for people who cannot meet their immediate short term needs in an emergency or as the result of a disaster. Details about how to apply and who is eligible can be found at <https://www.gov.uk/crisis-loans>.

## Promote Flood Protection Insurance

1.1.1 Insurance plays a key role in flood risk management. Between 2000 and 2013, the Government had an agreement with the insurance industry, called the 'Statement of Principles', which committed insurers to offer insurance to existing customers where they are at significant flood risk. However, the Statement was only ever intended to be a temporary measure, and has restricted customer choice as insurers only have commitments to their existing customers, and new insurers can decide to whom they offer flood insurance. The Statement also does not guarantee affordable flood premiums or manageable excesses, and despite it an increasing number of people are beginning to struggle to afford flood insurance.

1.1.2 Flood Re will provide a fund to offer people at high flood risk who might otherwise struggle to get affordable flood insurance with cover at a set price. Insurers will put into the fund those high flood risk homes they feel unable to insure themselves, with the premium to cover the flood risk part of the household premium capped. The cap will be based on Council Tax bands, starting at no more than £210 per annum in Bands A and B, rising to £540 per annum in Band G. The capped premiums will go into the fund to help pay flood claims. So if you are at flood risk you know that the cost of your flood insurance will be limited. To help fund this, all home insurers will collectively be subject to a levy. On average this works out at £10.50 a year on all home insurance policies. Homeowners already pay this, as some cross-subsidy has always existed between lower and higher flood risks.

1.1.3 Assuming various implementation issues are resolved, the Flood Re scheme is expected to be ready for business in summer 2015. While work to develop this scheme happens, Association of British Insurers (ABI) members will voluntarily continue to meet their commitments to their existing customers under the old Statement of Principles agreement.

1.1.4 Further information on Flood Re can be found at the ABI website (<https://www.abi.org.uk/Insurance-and-savings/Topics-and-issues/Flooding>).

7.4.22. For more information on obtaining flood protection insurance, see the leaflet "[Obtaining Flood Insurance in High Risk Areas](#)", published in partnership by Defra in July 2012.

7.4.23. The County Council will encourage the take up of flood protection insurance and will promote property level protection and resilience measures which can reduce premiums.

## *Objective 5: Flood Risk and Development*

**“Minimise the increase in local flood risk that may arise from new development by producing guidance, setting standards, promoting the sustainable use of water and supporting the development of local policies and guidance, discouraging wherever**

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<sup>9</sup> Northamptonshire County Council does not endorse any individual product or company.

## **possible surface water runoff in new and future developments and where possible influencing or supporting developments that seek to reduce existing flood risk”**

7.5.1. The following activities set out below and listed within the [Action Plan](#) will enable this objective to be achieved:

- Implementation of sustainable drainage and source control measures;
- Creation of the Sustainable Drainage Systems (SuDS) Approval Body;
- Production of guidance relating to SuDS and to groundwater flooding;
- Utilisation of designation powers;
- Use of consenting powers for certain works affecting ordinary watercourses;
- Adherence to policies;
- Promotion of flood risk reduction in land-use planning;
- Enterprise Zones and Local Development Orders;
- Avoid new development in high risk areas;
- Increase the standard to which development is protected from flooding;
- Management of residual flood risk remaining in new development once flood management measures have been implemented;
- Assessment of flood risk impacts upstream and downstream;
- Flood risk and existing development;
- Considerations for future flood alleviation schemes; and
- Water Framework Directive considerations in land use planning.

### **Implementation of Sustainable Drainage and Source Control Measures**

7.5.2. Schedule 3 of the Flood and Water Management Act (2010) includes the provision to increase the uptake of sustainable drainage systems (SuDS) in new developments and redevelopments. In addition, the government is encouraging existing communities to ‘retrofit’ sustainable drainage in their gardens and neighbourhoods. SuDS are also promoted within the National Planning Policy Framework, the associated Technical Guidance and more detail is provided within extant Planning Policy Statement 25: *Development and Flood Risk Practice Guide*.

7.5.3. The SuDS approach to surface water drainage aims to deliver better management of surface water runoff, promote the sustainable use of water, including allowing for the collection and storage of surface water. SuDS aim to mimic natural drainage processes by limiting the rate and volume of surface water runoff, as well as treating water to improve quality.

7.5.4. There are many different types of SuDS components that can fit into a variety of settings. They can be soft (vegetation based) or hard (proprietary devices), and each has a different function. Features of a SuDS system could include: green roofs, infiltration trenches, permeable paving, underground storage, wetlands and ponds.

7.5.5. Appropriate implementation of SuDS can deliver many advantages compared to traditional drainage systems. Traditional systems are normally designed to remove surface runoff from developed areas as quickly as possible, which could increase the risk of flooding downstream and contribute to pollution of watercourses.

7.5.6. Where developments will have large impermeable areas, SuDS techniques can manage surface water flow rates, help manage the risk of flooding, reduce water pollution, and enhance the environment.

7.5.7. Until the provisions of this part of the Act have been implemented, developers should consult with the Environment Agency in relation to their SuDS proposals, to ensure that they are adopting the most effective methods for their site.

7.5.8. National Guidance and standards on SuDS and the SuDS Approval Body (SAB) is currently awaited. The implementation of sustainable drainage and source control measures will however be encouraged in the interim period before the implementation of the Sustainable Drainage Approval Body. This measure will be achieved through more detailed guidance set out in a Northamptonshire specific Sustainable Drainage Supplementary Planning Document (SPD) for developers and development management officers and will be produced in partnership with the Environment Agency, the water companies and the Borough and District Councils. The guidance will include:

- The SAB process in Northamptonshire;
- Legislation and guidance;
- Links to green and blue infrastructure;
- Links to the landscape;
- Sustainable use of water;
- Water quality treatment processes;
- Principles of adoption and requirements;
- SuDS features in private ownership;
- Designation;
- Waste management; and
- Other environmental issues.

7.5.9. Until the provisions of this part of the act and the Northamptonshire Specific Supplementary Planning Document has been produced, developers should consult with the Environment Agency in relation to their SuDS proposals, to ensure that they are adopting the most effective methods for their site.

#### Creation of the SuDS Approval Body (SAB)

7.5.10. The Act requires the drainage system for each new development or re-development (subject to exemptions) to be approved by the County Council as Lead Local Flood Authority (LLFA) for the area before construction starts. The drainage system must take account of the new [National Standards](#) for the design and construction of sustainable drainage systems.

7.5.11. Once this part of the act has been commenced, the LLFA must establish a SuDS Approval Body (SAB), having a range of responsibilities including:

- The approval of proposed surface water drainage systems in new and redevelopments (the right for new developments to connect their surface water drainage to the public sewerage system is conditional upon this);
- Adopting and maintaining SuDS which serve more than one property, where they have been approved by the SAB; and
- Designating SuDS on private property as features that affect flood risk and detailing all approved SuDS structures and features on the [Asset Register](#).

7.5.12. Most types of construction with drainage implications will require SAB approval. Developers can either submit an application for SAB approval to the Local Planning Authority (LPA) alongside a planning application (referred to as a 'combined' application), which the LPA would then pass onto the SAB for determination, or applications can be submitted directly to the SAB (referred to as a 'free-standing' application).

7.5.13. The decision of the SAB is intended to be independent to that of the LPA in determining planning applications. The SAB role will not prevent planning permissions being granted. If approval is not granted by the SAB there is a right to appeal to the Planning Inspectorate acting on behalf of the Secretary of State. However construction of a development with planning permission, but which requires SAB approval cannot commence until the SAB approval is given.

7.5.14. Once a SAB application has been approved, the SAB may be held responsible for adopting and maintaining that feature.

7.5.15. Defra have confirmed that they are working on a long term funding structure for future adoption and maintenance. In the short-term, once this part of the act has been commenced, Defra have committed to cover the full cost of adoption and maintenance.

## Production of Guidance

### Northamptonshire SuDS Guidance

7.5.16. National Guidance and standards on SuDS and the SuDS Approval Body (SAB) is currently awaited. The implementation of appropriate sustainable drainage and source control measures will however be encouraged through the production of more detailed local guidance for developers and development management officers. The Northamptonshire SuDS Guidance will be produced in partnership with the Environment Agency, the water companies and the Borough and District Councils, and the guidance will:

- Provide clear local criteria for designing, constructing, adopting and maintaining SuDS in Northamptonshire;
- Ensure consistency with the National Standards;
- Reflect the local context and planning policies (e.g. landscape, and biodiversity requirements and local flood risk);
- Identify the SuDS features that will be adoptable for the County Council;
- Provide a flexible approach to designing SuDS;
- Identify local criteria and SuDS features which recognise the varying landscape and geology across the County;
- Take account of the planning application process, including the National Planning Policy Framework and associated Technical Guidance; and
- Ensure consistency with the Anglian Water ‘ Sustainable Drainage Systems Adoption Manual’;

7.5.17. Until the provisions of this part of the act and the Northamptonshire SuDS Guidance has been produced, developers should consult with the Environment Agency in relation to their SuDS proposals, to ensure that they are adopting the most effective methods for their site.

### Northamptonshire Groundwater Flooding Guidance

7.5.18. The County Council will produce new guidance in relation to groundwater flooding in Northamptonshire, for developers, planners and homeowners in the County. The guidance will aim to:

- Explain what groundwater flooding is and its various causes;
- Identify areas within Northamptonshire that are potentially susceptible to groundwater flooding;
- Use existing groundwater susceptibility mapping combined with geological, hydrogeological and historical flooding records to refine the areas of susceptibility to risk locally;
- Provide a methodology to assist planning officers and flood risk engineers to establish the risk of groundwater flooding at individual sites;
- Set out a procedure for undertaking the assessment of groundwater risk for developers based on known susceptibility, development proposals and local ground conditions.

## Utilisation of Designation Powers

7.5.19. Designation is a form of legal protection reserved for certain key structures or features that are privately owned and maintained, but which make a contribution to the flood risk management at a particular location. This is to ensure that the risk of a person altering or removing a structure or feature, which is relied on for flood risk management, without consent is prevented.

7.5.20. A designation is a legally binding notice served by the designating authority to the owner of the feature and the notice is also a local land charge. This means that the notice will also apply to any successive owners or occupiers of land or property where a designation exists automatically.

7.5.21. The authorities with the power to designate are:

- the Environment Agency;
- the Lead Local Flood Authority;
- the relevant Borough or District Council; and
- Internal Drainage Boards.

7.5.22. The County Council acknowledges the strength of the [Local Flood Risk Management Framework](#), which has been developed in the county and recognises that partnership working is essential. The County Council will therefore work with its partners to put together an agreed countywide register of non-main river features, which have a critical role to play in terms of flood risk protection and will work with those authorities to formally designate such features, if considered necessary and appropriate.

7.5.23. The SAB is responsible under Schedule 1 of the Act for designating all SuDS on private property (whether they are private or adopted by the SAB) as features affecting flood risk. The SAB will also be required to record all approved SuDS on the register of structures and features.

## Consenting Powers for Works Affecting Ordinary Watercourses

7.5.24. The Flood and Water Management Act (2010), alters the Environment Agency's Consenting and Enforcement Powers under Section 23 (Control of Flow of a Watercourse) of the Land Drainage Act (1991). These powers were transferred to the County Council as Lead Local Flood Authority on 6 April 2012. This relates to ordinary watercourses only, as consenting and enforcement powers for main rivers are held by the Environment Agency. Internal Drainage Boards retain all existing powers for Consenting and Enforcement in their drainage districts.

7.5.25. Section 23 of the Land Drainage Act has been amended by the Act in relation to the requirement of consent for:

- The erection of any mill, dam, weir or structure that will affect the flow of an ordinary watercourse; or
- The erection or alteration of a culvert in an ordinary watercourse.

7.5.26. This has been interpreted by the County Council as applying to any obstruction, which might impede flow of water and hence increase flood risk.

7.5.27. Under Section 13(4) of the Act, the County Council can arrange for another [Flood Risk Management Authority](#) to carry out flood risk management functions on the council's behalf.

7.5.28. The County Council has arranged for this flood risk management function to be undertaken by the [Bedford Group of Drainage Boards](#). This decision was taken because they already cover part of the geographical area of Northamptonshire (South Northants), they currently process consent applications, they are a non-for-profit making authority

and they will be taking on this same function for several neighbouring Lead Local Flood Authorities, therefore keeping the process consistent across the region.

7.5.29. Some applicants may require several different consents or perhaps even a temporary consent, and will be advised accordingly. For example works in Northamptonshire with the potential to affect water quality may also require a discharge consent (environmental permit) from the Environment Agency as well as a consent from the Bedford Group of Drainage Boards relating to the structure.

7.5.30. Perspective applicants are encouraged to visit the [Bedford Group of Drainage Boards website](#) for a consenting guidance pack and to undertake pre application discussions with officers, which could include the submission of preliminary drawings and a site meeting. Applicants are then required to complete the application form and will be required to make the relevant payment as set by legislation, which is currently £50.

7.5.31. There is a two month period (from the receipt of the application) to determine (approve or refuse) a consent application. If no conclusion is reached after this period, the consent is automatically granted (a deemed consent).

### Consenting Policy Requirements

7.5.32. The following policies relate to the ordinary watercourse consenting process. If any works are proposed on ordinary watercourses outlined within the policies below, such as culverting, stopping or diverting watercourses, formal ordinary watercourse consent will be required. The consenting process requires all environmental considerations to be assessed.

#### **Policy 1: Culverting of Ordinary Watercourses**

No ordinary watercourse should be culverted unless there is an overriding need to do so. This is because:

- (a) The ecology of the watercourse is likely to be degraded by culverting;
- (b) Culverting introduces an increased risk of blockage (with consequent increase in flood risk); and
- (c) It can complicate maintenance because access into the culvert is restricted (in some cases being classified as a confined space and requiring trained operatives and specialist equipment).

7.5.33. Defra published a set of model land drainage byelaws. As upper tier authorities do not hold the powers to make such bylaws, the County Council has transposed these Bylaws into Policies and therefore any works relating to these policies will require formal ordinary watercourse consent. The aims of the Policies are to:

- Secure the efficient working of a drainage system in the Council's area;
- Regulate the effects on the environment in the Council's area of a drainage system;
- Secure the effectiveness of flood risk management work; and/or
- Secure the effectiveness of works done in reliance on section 38 or 39 of the Flood and Water Management Act 2010 (incidental flooding or coastal erosion).

#### **Policy 2: Introduction of Water and Increase in Flow or Volume of Water**

No person shall as a result of development (whether or not such development is authorised by the Town and Country Planning Act 1990 or any regulation or order whatsoever) for any purpose by means of any channel, siphon, pipeline or sluice or by any other means whatsoever introduce any water into any ordinary watercourse in the area so as to directly or indirectly increase the flow or volume of water in any ordinary watercourse in the area (without the previous consent of the relevant flood risk management authority).

### **Policy 3: Control of Sluices etc**

Any person having control of any sluice, or water control structure or appliance for introducing water into any ordinary watercourse in the area or for controlling or regulating or affecting the flow of water in, into or out of any ordinary watercourse shall use and maintain such sluice, water control structure or appliance in accordance with such reasonable directions as may from time to time be given by the relevant flood risk management authority with a view to the prevention of flooding in the area.

### **Policy 4: Diversion or Stopping up of Ordinary Watercourses**

No person shall, without the previous consent of the relevant flood risk management authority, take any action, or knowingly permit or aid or abet any person to take any action to stop up any ordinary watercourse or divert or impede or alter the level of or direction of the flow of water in, into or out of any ordinary watercourse.

### **Policy 5: Detrimental Substances not to be Put into Ordinary Watercourses**

No person shall, so as directly or indirectly to obstruct, impede or interfere with the flow of water in, into or out of any ordinary watercourse or so as to damage the bank -

- (a) discharge or put or cause or permit to be discharged or put or negligently or wilfully cause or permit to fall into any ordinary watercourse any object or matter of any kind whatsoever whether solid or liquid;
- (b) allow any such object or matter as is referred to in sub-paragraph (a) of this Policy to remain in proximity to any ordinary watercourse in such manner as to render the same liable to drift or fall or be carried into any watercourse.

Provided that nothing in this Policy shall be deemed to render unlawful the growing or harvesting of crops in accordance with normal agricultural practice.

### **Policy 6: Notice to Cut Vegetation**

Any person having control of any ordinary watercourse shall, upon the receipt of a notice served on that person by the relevant flood risk management authority requiring that person so to do, cut down and keep cut down all vegetation, including trees, growing in or on the bank of an ordinary watercourse, within such reasonable time as may be specified in the notice, and shall remove such vegetation, including trees, from the ordinary watercourse immediately after the cutting thereof.

Provided that, where a hedge is growing on the bank of a ordinary watercourse, nothing in this Policy shall require more than the pruning of the hedge so as to prevent it from growing over or into the ordinary watercourse, and the removal of the resultant cuttings.

### **Policy 7: No Obstructions within 9 Metres of the Edge of the Ordinary Watercourse**

No person without the previous consent of the relevant flood risk management authority shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within 9 metres of the landward toe of the bank where there is an embankment or wall or within 9 metres of the top of the bank where there is no embankment or wall, or where the watercourse is enclosed within 9 metres of the enclosing structure.

**Note:** The Environment Agency also have similar bylaws relating to main river distances, which may be greater than 9 metres.

### **Policy 8: Repairs to Buildings**

The owner of any building or structure in or over an ordinary watercourse or on the banks thereof shall, upon receipt of a notice from the relevant flood risk management authority that because of its state of disrepair -

- (a) the building or structure is causing or is in imminent danger of causing an obstruction to the flow of the ordinary watercourse;
- (b) the building or structure is causing or is in imminent danger of causing damage to the bank of the ordinary watercourse,

carry out such reasonable and practicable works as are specified in the notice for the purpose of remedying or preventing the obstruction or damage as the case may be within such reasonable time as is specified in the notice.

### **Policy 9: Damage by Animals to Banks**

All persons using or causing or permitting to be used any bank of any ordinary watercourse for the purpose of grazing or keeping any animal thereon shall take such steps including fencing as are necessary and reasonably practicable and shall comply with such reasonable directions as may from time to time be given by the County Council to prevent the bank or the channel of the ordinary watercourse from being damaged by such use.

Provided that nothing in this Policy shall be deemed to affect or prevent the use of, for the purpose of enabling animals to drink at it, any place made or to be made or constructed as approved by the relevant flood risk management authority.

### **Policy 10: Vehicles not to be Driven on Banks**

No person shall use or drive or permit or cause to be used or driven any cart, vehicle or implement of any kind whatsoever on, over or along any bank of an ordinary watercourse in such manner as to cause damage to such bank.

### **Policy 11: Banks not to be Used for Storage**

No person shall use or cause or permit to be used any bank of any ordinary watercourse for the purpose of depositing or stacking or storing or keeping any rubbish or goods or any material or things thereon in such a manner as by reason of the weight, volume or nature of such rubbish, goods, material or things causes or is likely to cause damage to or endanger the stability of the bank or channel of the ordinary watercourse or interfere with the operations or access of the relevant flood risk management authority or the right of the relevant flood risk management authority to deposit spoil on the bank of the watercourse.

### **Policy 12: Not to Dredge or Raise Gravel, Sand etc**

No person shall without the previous consent of the relevant flood risk management authority dredge or raise or take or cause or permit to be dredged or raised or taken any gravel, sand, ballast, clay or other material from the bed or bank of any ordinary watercourse.

## **Promotion of Flood Risk Reduction in Land-Use Planning**

7.5.34. The risk of flooding is a key consideration in determining planning applications and in the selection and assessment of sites for development. The impact of flooding needs to be assessed both in respect of the risk of flooding to a particular proposed development and any increased risk of flooding to surrounding and downstream areas from a proposed development.

- 7.5.35. In developing land-use plans, planning authorities and the joint planning units must take flood risk into account and ensure that the risks are managed and new properties are insurable over their lifetime.
- 7.5.36. District councils have key roles in land use planning and working with communities to ensure that development is appropriate for the area in question.
- 7.5.37. Effective collaborative working and cross-departmental communication must be ensured so that existing and future flood risk information is passed to the County Council, and the district planners have suitable explanatory information and guidance notes for practical application.
- 7.5.38. To date, Strategic Flood Risk Assessments, Water Cycle Strategies, Surface Water Management Plans, Local Flood Risk Management Plans and Drainage Assessments have been undertaken at some point by the Borough and District Councils and Joint Planning Units. The Northamptonshire Preliminary Flood Risk Assessment and Northampton Surface Water Management Plan have also been developed by the County Council. The key policy recommendations from each of these technical studies have been collated and have been used to inform this Strategy. Planners should use the advice set in this Strategy, which has been developed in accordance with the National Planning Policy Framework and associated Technical Guidance and constitutes a material planning consideration, when determining planning applications.
- 7.5.39. Local Authorities will use this information in order to apply the “sequential approach” to allocating land for development and dealing with planning applications. This approach is now emphasised in the National Planning Policy Framework, requiring developers to demonstrate that there is no suitable alternative land available within a lower risk category site.
- 7.5.40. The County Council will maintain contact with county and district planners so that, as new studies are commissioned, the information produced from them can feed into development planning processes.

### Flood Risk and Future Development

- 7.5.41. The location of future urban developments and flood defences within a catchment can heavily influence flood risk in the area and has the potential to further increase flood risk at areas downstream of such developments. Impacts include the lowering of the Standard of Protection (SoP) offered by flood defences and the carrying capacity of culverts, drains, sewers and watercourse channels. This potentially leads to areas being at risk of flooding that were previously not at risk and highlights the increasing conflicts and pressures that are emerging between climate change scenarios and future development aspirations. All flood risk implications should therefore be considered at the early stage of planning for development. Pre-application discussions between developers and flood risk management authorities are encouraged.
- 7.5.42. Regeneration proposals offer the opportunity to integrate flood risk management into the heart of urban design.

### Enterprise Zones and Local Development Orders

- 7.5.43. The Northampton Waterside Enterprise Zone (EZ) was designated in August 2011 and is composed of more than 20 sites along the River Nene, stretching from Sixfields in the west, right across the town centre of Northampton. More information can be found at: <http://northamptonez.co.uk/enterprise-zone/about-the-enterprise-zone/>.
- 7.5.44. The EZ introduced the concept of ‘simplified planning’ to reduce the burden on development and business. Within the EZ there are three Local Development Orders

(LDOs) which have been developed and replace the need for planning permission. The three areas include St James, Sixfields and St Peters.

- 7.5.45. Any proposed development within this zone will still require an assessment of flood risk from all sources. It is therefore recommended that early contact is made with the Local Planning Authority to determine the level and type of assessment required. More information relating to the Local Development Orders can be found at:  
[http://www.northampton.gov.uk/info/200074/planning/1110/local\\_development\\_orders](http://www.northampton.gov.uk/info/200074/planning/1110/local_development_orders).

### Avoid New Development in High Risk Areas

- 7.5.46. This measure would involve the continued development and implementation of a new planning policy, which avoids new, re-development or extensions in high flood risk areas unless the development meets the sequential approach or exception test, as set out in the National Planning Policy Framework and associated technical guidance. The Environment Agency is a Statutory Consultee to the planning process and will ensure consistency and compliance.

### Increase Standards of Protection

- 7.5.47. Following the significant flooding to Northampton town centre in Easter 1998 improvements were made to the defences along the River Nene. In order to secure the level of protection afforded by the new defence, the Environment Agency have agreed with the West Northants Joint Planning Unit that the standards set for new development should also be improved, beyond industry standards.
- 7.5.48. Therefore all new development in the Upper Nene catchment will be designed for a flood with a 0.5% probability (1 in 200 chance) occurring in any year, including an appropriate allowance for climate change. This includes design of mitigation for main river flooding and any surface water attenuation. This applies across the whole of the Upper Nene catchment including all branches and arms of the Nene, upstream of Billing Aquadrome, and all tributaries such as Wootton Brook, Dallington Brook and Bugbrooke Brook.
- 7.5.49. This is supported by the Environment Agency document “Strategic Review of development and flood risk, Nene catchment Northampton and upstream” and reinforced within the [West Northamptonshire Strategic Flood Risk Assessment \(SFRA\) Level 1 \(February 2009\)](#).

### Residual Flood Risk in New Development

- 7.5.50. Residual risk can be defined as ‘the remaining risk following the implementation of all risk avoidance, reduction and mitigation measures’ (Communities and Local Government, 2007). In a flood risk context, this residual risk relates to the flood risk that remains after flood avoidance and alleviation measures have been put in place. An example of residual risk could include overtopping or breaching of floodwalls/defences.
- 7.5.51. Residual risk management therefore aims to prevent or mitigate the consequences of flooding that can occur despite the presence of flood alleviation measures. Application of the Sequential Test as defined by the National Planning Policy Framework and associated Technical guidance aims to preferentially develop or relocate potential development sites into areas with low flood risk. Where this is not realistically possible, some development sites may be located in higher flood risk areas. As a result, such developments will require residual risk management to minimise the consequences of potential flooding. Details of potential residual risk management options are set out below:
- Assessment of breach and overtopping risk of existing defences;
  - Assessment of blockage risk of existing defences;

- Assessment for remedial actions and ongoing maintenance of flood risk management infrastructure;
- Provision of overland flow paths to manage exceedance flows;
- Incorporation of flood resilience and resistance measures; and
- Flood warning and evacuation plans.

### Assessment of Flood Risk Impacts Upstream and Downstream

7.5.52. It is imperative that new development should not increase flood risk to the areas upstream or downstream of the area. Wherever possible it is desirable that new development actively reduces runoff rates and flood risk, and this betterment should be considered as part of any planning application.

### Flood Risk and Existing Development

7.5.53. A major issue remains with existing properties and poor capacity drainage systems, which will remain part of the urban fabric for many decades to come.

7.5.54. It is recommended that local planning authorities develop a more strategic approach to surface water management, where possible, integrating it with wider urban regeneration and landscape design plans which incorporate 'green' (non-built up vegetated areas) and 'blue' infrastructure (areas set aside for storing water or conveying storm water to drains) and which contribute to the requirements of the [Water Framework Directive](#).

7.5.55. This strategic approach should comprise:

- Retro-fitting (substituting new or modernised parts for older equipment) where possible, identify and improve 'pinch points' in the drainage system, and manage the local landscape to create safe flow routes;
- Replace impermeable surfaces (tarmac or concrete surfaces) with permeable paving;
- Incorporate rainfall harvesting to reduce demand for potable water;
- Provide adequate flood storage; and
- Maintain existing infrastructure.

### Future Flood Alleviation Schemes

7.5.56. Flood alleviation (defence) schemes not only have the potential to reduce flood risk, but can also improve and potentially create new habitats. The design and construction of all flood alleviation schemes should ensure the protection of the historic and natural environment.

7.5.57. The following factors should be taken into consideration when designing and constructing all new flood alleviation schemes and when upgrading existing schemes.

### Design and Evaluation Stage

7.5.58. Before the scheme is designed and the effects evaluated, early discussion should take place between the applicant and the appropriate local authority officer. This will provide the opportunity for clarification of submission requirements and should include the following:

- Compliance with statutory local and national planning policy and associated guidance;
- Developer promotion during the preparation of the scheme design, including formal public consultation and consideration of any feedback;
- Assessment of the flood maps on the [Environment Agency website](#), as well as any strategic flood risk assessments (see [Appendix 4](#) for a full list of flood and water management plans and strategies) to determine the type and extent of flood risk;

- Assess and design in the management of risk from all possible sources of flooding with a full understanding of climate change implications;
- Design in adequate space for maintenance and renewal if an upgrade or new flood defence will be required in the future;
- An environmental assessment that is proportional to the size and nature of the scheme should be carried out to identify the opportunities to create, manage and enhance wildlife habitats affected by the scheme, and determine whether a site-specific Habitats Regulations Assessment is required;
- Consider the potential for improvement to water quality where a watercourse is classed as less than “good” under the Water Framework Directive objectives (see [Appendix 6](#) for details and [Map A10](#) for current water quality status of watercourses within Northamptonshire);
- Ensure compliance with relevant Catchment Flood Management Plan policies, and assess opportunities to contribute to Catchment Flood Management Plan and River Basin Management Plan objectives and actions (see [Appendix 6](#));
- Design in, where possible, multifunctional green and blue corridors/spaces linked to the existing local network, so as to provide a range of environmental and social benefits;
- Consideration should be given to the Nene Valley, which contains nationally and internationally important wetlands and may be affected by changes in water management in the catchment;
- All designated nature conservation and protected sites, such as the Nene Washes, must be taken into account;
- The [Northamptonshire Biodiversity Records Centre](#) should be contacted (by email [nbrc@wildlifebcn.org](mailto:nbrc@wildlifebcn.org) or phone 01604 400448) because they maintain a database of habitat and species data across Northamptonshire which may be affected by the proposal;
- The habitat opportunity map (see [Map A9](#) in [Appendix 3](#)) should be consulted (for works within the Nene and Ise corridors) to identify any opportunities for improving and creating habitat opportunities, including flood plain woodland re-forestation, which can help to intercept out of channel flows and encourage infiltration as well as potential wetland creation to manage water levels and allow additional flood storage;
- Reintroduce river meanders where possible to delay the movement of water downstream;
- The significance of any heritage assets potentially affected, including any impact on their setting should be described, based on the guidance set out within the document produced by English Heritage on [Flooding and Historic Buildings](#). English Heritage should be consulted where any proposals for flood risk management affect designated heritage assets, particularly highly graded assets including their setting. The historic environment record should also be consulted by emailing [HER@northamptonshire.gov.uk](mailto:HER@northamptonshire.gov.uk). Where a site on which a scheme is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation. Consideration should also be given to potential enhancement of heritage assets.

### **Planning Application Process**

7.5.59. Where a flood alleviation scheme requires planning approval, the application should be:

- In compliance with statutory local and national planning policy and associated guidance;

- Supported by an adequate flood risk assessment, which demonstrates that the scheme and those it will benefit, will be safe for the lifetime of the scheme and that the proposal does not increase the risk of flooding elsewhere; and
- Accompanied by an environmental assessment that is proportional to the size and nature of the development and should include the assessment of Water Framework Directive implications.

### **Development and Construction Stage**

7.5.60. During the construction of a flood alleviation scheme, the following factors should be considered:

- Protect adjoining areas of land from flooding whilst constructing the scheme;
- A timetable for construction to avoid sensitive periods, such as bird breeding or fish spawning seasons; and
- Obtain all necessary consents/permits to manage the risk of flooding and protect the environment before starting work, including:
  - Consignment Note - Moving any hazardous waste.
  - Fisheries Byelaw Consent (removing fish) - Removing fish from rivers, streams, lakes, ponds or tidal waters.
  - Ordinary Watercourse Consent – see section above.
  - Hazardous Waste Premises Notification – There is a legal duty to register any premises if you produce hazardous waste in excess of 200kg in any year.
  - Herbicide Authorisation - Using herbicides or pesticides in or near water.
  - Mobile Plant Waste Management Licence - Treating contaminated soils and contaminated controlled waters.
  - Navigation Registration and Licence - Boats navigating on these rivers in Northamptonshire will need an Environment Agency registration or licence: the River Nene.
  - Pollution Prevention and Control Permit - Landfilling waste on-site.
  - Prescribed Processes Authorisation - Carrying out complex industrial processes that release potentially serious pollutants.
  - Radioactive Substances: Registrations and Authorisations - Using, storing or disposing of radioactive materials and waste.
  - Section 30 Fish Movement Licence - Introducing fish into rivers, streams, lakes, ponds or tidal waters.
  - Waste Carrier Registration - Transporting your own construction and demolition waste, or other people's controlled waste.
  - Waste Management Licence - Treating, keeping or disposing of controlled waste.
  - Waste Management Licensing Exemptions - Small-scale waste storage and recovery operations.
  - Waste Management Licensing Exemptions - Small-scale waste storage and recovery operations. Water Abstraction Licence - Abstracting or taking water from rivers, streams, lakes, ponds, tidal waters or groundwater. Also if you are constructing or altering any impounding works in rivers, streams, ponds or tidal waters.
  - Water impoundment license - Impoundment (storage) of water on a watercourse, for example the creation of a reservoir.
  - Water Quality Discharge Consent - any discharges to rivers, watercourses, other surface waters, groundwater, tidal waters or the sea.

### **Maintenance Stage**

7.5.61. Undertaking regular maintenance work can help to manage flood risk and therefore when designing, building and approving new flood risk management schemes, adequate

long-term maintenance regimes and agreements should be put in place. This should include the following, where relevant:

- Clearing grills and removing obstructions from ordinary watercourses;
- Controlling aquatic weed within rivers;
- Managing grass, trees and bushes on flood embankments; and
- Inspection and repair of flood defence structures.

7.5.62. Each site is different so the most suitable maintenance procedure for each scheme will need to be assessed. The most sustainable way of managing flood risk should be explored, whilst minimising the environmental impact of any maintenance operations.

### Water Framework Directive Considerations in Land-Use Planning

7.5.63. The [Water Framework Directive \(WFD\)](#) was published in December 2000 and transposed into English and Welsh law in December 2003. It introduces a new concept of “*good status*” that is far more rigorous than current water environment quality measures. It is estimated that 95% of water bodies are at risk of failing to meet “*good status*”.

7.5.64. The River Basin Management Plans (RBMPs) required by the Directive are important strategies that should influence development plans, and be influenced by them.

7.5.65. The Environment Agency is the competent authority relating to the Water Framework Directive. They work in partnership with spatial planners and developers to improve the water environment as well as achieving sustainable economic growth.

7.5.66. Spatial planning can help to deliver River Basin Management Plan objectives by:

- Checking that proposed development does not cause deterioration of water bodies;
- Ensuring that the scope of Sustainability Appraisal/Strategic Environmental Assessment for spatial plans includes impacts on water bodies;
- Respecting the limits of the water environment when generating development options; and
- Adopting spatial plan policies that will help to achieve ‘good status’ in water bodies.

7.5.67. Best practice for plan making includes using water cycle strategies to check the capacity of water bodies and infrastructure including public water supply and waste water treatment. Numerous Water Cycle Strategies have been undertaken across Northamptonshire and a full list can be found in [Appendix 4](#).

7.5.68. Planning bodies and authorities need to think about the implications of proposed development and land use change on water, including beyond their local authority boundary, and take action now, using their development plans to:

- Identify water management issues that are relevant to spatial planning – planning policies should influence the design and location of new development to ensure it does not create adverse pressures on the water environment that could compromise our ability to meet WFD objectives; and
- Help to ensure that understanding of the pressures of, and opportunities for, development are reflected in the analysis underpinning River Basin Management Plans.

7.5.69. The Environment Agency will support planning authorities through its role as a statutory consultee on development plans. It will:

- Develop summaries of significant water management issues for each River Basin District with key stakeholders, including planning authorities;
- Incorporate sustainable water management into its comments on Sustainability Appraisals of development plans; and

- Advise on appropriate policies for inclusion in development plans.
- 7.5.70. Failure to comply with the requirements of the Water Framework Directive and the Habitats Directive may lead to the European Commission bringing legal proceedings against the UK which may result in European Union infraction fines for non compliance with EU law. These fines can now be recovered from local authorities in full or part, as part of the [Localism Act \(2011\)](#).

### *Objective 6: Economically sustainable approach*

**“Ensure the financial viability of flood related schemes through the development of appropriate policies and assessment tools to ensure that flood risk management measures provide value for money whilst minimising the long-term revenue costs. Seeking to use natural processes where possible or source the costs of any maintenance from the financial beneficiaries of the development”**

- 7.6.1. The intention of this objective is to give decision makers and investors in flood risk management, the insight into economically sustainable and viable local flood improvement opportunities and how they might be funded. The partners of the [Northamptonshire Flood and Water Management Framework](#) have agreed that a shared programme of Flood Risk Management should therefore be promoted.
- 7.6.2. The following activities set out below and listed in the [Action Plan](#) will enable this objective to be achieved:
- Working together, aligning stakeholders with those who would benefit from further investment in flood risk management;
  - Prioritised approach to implementing the most sustainably cost effective measures to reduce flood risk;
  - Identification of alternative funding sources;
  - Determine what can be afforded with available funding;
  - Utilise the new partnership approach to funding;
  - Create an annual programme of works; and
  - Consider local needs, priorities and pressures.

### *Working Together*

- 7.6.3. A key objective of this Strategy is to align stakeholders, particularly those with available funding, with those who would benefit from further investment in flood risk management. Within this process, developing options for investment will need to test the local appetite for reducing the risk of flooding against the willingness to meet any additional costs that are not covered by central government support via the [Flood Defence Grant in Aid \(FDGIA\)](#). It is important to note that at the time of writing this Strategy, this is set against a backdrop of limited resources and low economic activity nationally.
- 7.6.4. A coordinated approach led by the County Council as Lead Local Flood Authority is therefore considered essential and this will include a partnership approach to Flood Defence Grant in Aid and other relevant bids. Each proposed flood risk management scheme will be assessed separately to identify which partners should be involved and could comprise:
- [The Environment Agency](#);
  - [Water companies](#);
  - [Borough and District Councils](#);
  - [The Internal Drainage Board](#);
  - [Regional Flood and Coastal Committees](#); and
  - Beneficiaries and communities.

- 7.6.5. The County Council will be considering all forms of funding identified in [Appendix 7](#) and will ensure that when opportunities arise, detailed and robust bids are submitted. The County Council will also provide a coordinating and supporting role for the local authorities to submit scheme specific bids. The [Strategic Flood Risk Board](#) has been tasked with maximising opportunities to influence partner strategies and resource allocations and to maximise external funding.
- 7.6.6. Through the close working partnerships established, the County Council will ensure:
- Good engagement amongst key decision makers, partners, communities and other stakeholders;
  - More effective and transparent prioritisation between competing projects throughout the county and also between projects tackling different sources of risk; and
  - A compelling business case for external contributions and other local investment, by showing that relatively small amounts of local investment over time may have a big impact in terms of long-term residual risk for an area, with any implications for property and land values and insurability taken into account.

### Prioritised Approach

- 7.6.7. Although the benefits of individual flood risk management measures are often many times greater than their cost, it is not technically, economically or environmentally possible to prevent all flooding. Therefore this Strategy will implement the most sustainably cost effective measures that will help to reduce flood risk and help to manage the impacts felt by communities, as each action is considered in more detail.
- 7.6.8. For each potential project or scheme outlined in the [Action Plan](#), the following will be assessed:
- The potential for these projects to receive national FDGiA funding;
  - Where schemes are unlikely to be affordable, to suggest where a different approach may be needed, such as a reduced standard of protection or property resilience measures; and
  - How any identified funding gaps might be filled, either by drawing upon partners' resources or pursuing wider sources of funding.
- 7.6.9. Following an assessment of the geographical areas within Northamptonshire at most risk of potential flooding, and comparing this with the highest levels of deprivation within the county, it has been possible to establish those areas that would be most likely to attract national FDGiA funding. These areas were associated with the towns of Corby, Kettering, Northampton and Wellingborough.
- 7.6.10. Specific aims have been outlined in the [Action Plan](#) to ensure [Objective 6](#) is met and include the need to:
- Continue to develop and establish short and long term funding arrangements to deliver the requirements of the Flood and Water Management Act;
  - Continue to bid for relevant funding as and when the opportunity arises, to support future projects and flood alleviation schemes i.e. FDGiA funding; and
  - Ensure Infrastructure Development Plans, Community Infrastructure Strategies and Transport Infrastructure Plans are influenced by this Strategy and that developer funding is sought where considered appropriate and necessary.
- 7.6.11. The progress of these actions will be monitored and reviewed on an annual basis. These aims also link to the principles of reducing flood risk through new development and regeneration, and promoting the development of flood alleviation schemes in partnership with others, under [Objective 5](#).

## Identification of Funding Sources

7.6.12. There are a number of different sources of funding for flood and water management work, which are set out in [Appendix 7](#). These range from European to national, regional and local sources of funding, including both direct and indirect beneficiaries from flood alleviation schemes.

## What can be Afforded

7.6.13. There are several aspects to determining what can be afforded. Firstly, there is a need to understand the scale of the problem and the likely costs to address them. An examination is then carried out into the amount of funding support that could be accessed with modest or no reliance on local funding sources or support from the local population and beneficiaries. It can then be reviewed how much added value can be gained by seeking local contribution (referred to as local partnership funding). Finally, consultation would occur to establish the appetite for investment in flood risk management and then investment planning can be finalised.

## Partnership Funding

7.6.14. In the past, most flood risk management schemes have been built using Defra central government funding (FDGiA), with allocation based on a national prioritisation. Local Levy (raised through the former Regional Flood Defence Committees, now [Regional Flood and Coastal Committees](#)) was allocated towards local priorities, including projects that could not attract FDGiA.

7.6.15. Clearly, access to FDGiA is vital for any substantial flood risk management investment programme. Planned spending on this is captured in the Environment Agency's Medium Term Plan (or Sanctioned List). In order to attract FDGiA, projects need to be devised in order to achieve specific outcomes outlined by Defra. The higher the outcome measure (a score based on how much local partnership funding is to be provided) the more likely it is that funding will be forthcoming.

7.6.16. Now there is an emphasis on funding from external contributions towards schemes, because FDGiA is allocated based on the benefits a scheme delivers, which may not cover the full cost. Even where FDGiA will cover the full costs, there will still be a case to be made for local contributions, which will increase the overall amount of grant that is available for other schemes. The amount of FDGiA and Local Levy available is unknown until all bids have been received and processed by the Environment Agency and Regional Flood and Coastal Committees.

## An Annual Programme of Works

7.6.17. Work undertaken has highlighted the need to secure a range of sources of funding. Actions have been included within this Strategy to continue bidding for funding as well as influencing communities and beneficiaries of potential schemes as and when they are developed. Where it is not possible to fill funding gaps, it will be necessary to explore alternative solutions to reduce the costs of the schemes.

7.6.18. The first process to develop any scheme is to consult with the key partners, in order to discuss and agree funding options and to assess any environmental implications. All partners and potential sources of funding have been set out in the [Action Plan](#). For the majority of the schemes, further investigation studies are required to reduce the uncertainties, to get a clearer understanding of the requirements of the scheme and to allow for FDGiA bids to be submitted.

7.6.19. The alternative sources of funding identified by this process will need to be investigated in further detail by the relevant partners, coordinated by the LLFA, to determine their viability. These investigations will then inform future actions.

7.6.20. There are a number of triggers which may alter the way in which projects are funded and these could include: changes to funding regimes, availability of funding, changes in political priorities, community pressures, a major flooding incident, new development, regeneration, revised assessments of flood risk, and changes in assessment methodology.

### Local Requirements

7.6.21. The local requirement for the implementation of flood alleviation schemes is often promoted in response to flooding incidents or local pressures rather than on the basis of a strategic prioritisation of potential flood risk.

7.6.22. The County Council recognises that each of its partners adopts different approaches to prioritising investment in flood risk management, but through the close working relationships with partners and as new studies are undertaken, knowledge is gathered and new data is produced, this will assist in building knowledge and understanding of local flood risk.

7.6.23. This in turn will help the County Council and its partners to increasingly adopt risk-based approaches to local flood risk management; prioritising investment and resources to the areas of highest risk within the county.

### *Objective 7: Riparian Responsibilities*

#### **“Encourage flood management activities by private owners of ordinary watercourses and flood defence structures as well as limit the development of constrictions on ordinary watercourses”**

7.7.1. The following activities set out below and listed within the [Action Plan](#) will enable this objective to be achieved:

- Warning and informing of Riparian Owners;
- Active encouragement and enforcement of flood risk management activities by Riparian Owners;
- Provision of advice on how to resolve nuisance flooding; and
- Provision of advice on mediation and legal proceedings.

### Warning and Informing of Riparian Owners

7.7.2. The maintenance and clearance of watercourses plays a key role in land drainage and flood risk management. Responsibility for maintenance of watercourses, particularly in relation to roadside ditches and small streams, is not generally well understood by the public.

7.7.3. Unless property deeds clearly state otherwise, people who own land adjacent to watercourses are known as Riparian Owners under Common Law, and have responsibility for ensuring the free flow of water within their section of the watercourse. Riparian owner’s rights and responsibilities have been set out in a Northamptonshire specific guidance note, which will be made available on the [County Council’s Flood and Water webpages](#). The rights and responsibilities are also set out in the Environment Agency’s document “Living on the Edge – a guide to the rights and responsibilities of riverside occupation”, which can be found on their website at <http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx>.

7.7.4. Responsibilities include the maintenance of the bank and bed of the watercourse and also the management of trees and shrubs growing on the banks in order to avoid any obstruction to the flow of water. Riparian owners must also clear any debris, even if it did not originate from their land. When a watercourse runs between the boundary of a

property and a neighbour's boundary, each property owner will be responsible for maintenance up to the centre line of the watercourse.

- 7.7.5. It is essential that the County Council inform all riparian owners of their legal duty to maintain watercourses in neglected areas as well as the requirement to obtain formal consent for works affecting ordinary watercourses and flood attenuation measures, which will consider all environmental implications of the proposed works.
- 7.7.6. Any flood risk management work undertaken should have a minimal adverse impact on the environment, for example by avoiding any disturbance to the soil of the bed and banks of the watercourse, and considering the adverse impacts of the works on any protected species. It is recommended to avoid undertaking any intrusive works before late September when vegetation naturally begins to die back and the wildlife should not be nesting / breeding. It is also recommended that any waste produced from the maintenance of a watercourse be left on top of the bank for a few days to allow any organisms within the waste to migrate back into the watercourse, after which the waste should be removed
- 7.7.7. Any works to maintain the current level of flood risk management should not have a detrimental impact on environmentally designated sites or nationally important historic assets, or prevent the achievement of Water Framework Directive targets.

#### Active encouragement and enforcement of flood risk management activities by Riparian Owners

- 7.7.8. To reduce flood risk in the county, the County Council will continue to actively encourage riparian owners to undertake flood risk management activities on their land, through a process of cooperation, advice and assistance wherever possible.
- 7.7.9. The County Council has prepared a range of guidance documents to help riparian owners in their flood risk management activities. In particular, [guidance](#) relating to the maintenance of land drainage ditches (which can be applied to the maintenance of most smaller watercourses).
- 7.7.10. Most riparian owners are not alone – they will be living or working near neighbours who are also riparian owners to the same watercourse. It is recommended that these riparian owners work together as communities to reduce the individual burden of undertaking flood risk management activities; sharing resources, plans and skills.
- 7.7.11. Under the Land Drainage Act 1991, all councils have the powers to serve notice on riparian owners, for the removal of any blockage to an ordinary watercourse. Should the riparian owner fail to do so, the council has powers to undertake the work themselves and recharge the costs to the riparian owner. The County Council will always try to resolve problems through discussion with the owners in the first instance and enforcement of legislation will only ever be used as the last resort.

#### Advice on How to Resolve Nuisance Flooding

- 7.7.12. Where nuisance flooding is being caused by new buildings, walls or hard surfaces (e.g. driveways, car parks, pavements) you may wish to contact the planning department of your local council to see if there has been a breach of planning permission. Since 1<sup>st</sup> October 2008, property owners in England require planning permission if they wish to pave over their front gardens with non-permeable materials.
- 7.7.13. New walls and buildings may also require planning permission, whilst some developments may have had conditions attached to the planning permission to require that the development be constructed in a certain way (e.g. adequate drainage provision). You can check with your local authority as to whether the proper planning permissions have been given and any conditions of that permission have been met.

## Advice on Mediation and Legal Proceedings

- 7.7.14. Agricultural Land Tribunals have an important role in settling disputes referred to them under the Land Drainage Act 1991 (sections 28-31), such as flooding caused by blocked drainage channels or inadequately drained land. In spite of its name, this tribunal can deal with drainage on all types of land, not just agricultural land. The tribunal has powers to order a landowner to carry out work to maintain or reinstate drainage ditches. Enforcement of Land Tribunal Orders is undertaken by the Environment Agency, however few reach the point of requiring enforcement action. It is currently free to make an application to the Agricultural Land Tribunal. However you will need to cover the costs of providing maps and other information, and may also wish to hire legal representation. For more information see the [Defra website](#).
- 7.7.15. If it appears that a farmer is not managing their land in a way that minimises run-off and soil erosion, you can raise this matter with the [Rural Payments Agency](#) which is in charge of enforcing Common Agricultural Policy cross-compliance.
- 7.7.16. Whatever the cause of the nuisance flooding, mediation can be a means of resolving a dispute with your neighbour without going to court. It is also a cheaper option than court. If you are on a low income it may be possible to get help with the costs of mediation. The [National Mediation Helpline](#) (phone 0845 603 0809) can provide more information and put you in touch with a mediator.
- 7.7.17. Someone in your local community, for example a parish Councillor, may also be willing to act as an informal mediator to try to resolve the problem.
- 7.7.18. You can take civil law proceedings (an action for private nuisance) in the County Courts or the High Court (which one will depend upon the value of financial claims and complexity of the issues involved) if it appears that the facts amount to nuisance under the common law. Nuisance is an unreasonable interference with a person's use or enjoyment of their property/land or of some right connected with that land.
- 7.7.19. Flooding, in certain circumstances, could be found to be a "nuisance" under common law. Relevant factors include the extent of damage suffered, duration and frequency of the problem, sensitivity of the complainant, nature of the locality, and any malice involved, and the practicality and cost of rectifying the nuisance. They are relevant to determining whether a common law nuisance exists and what remedies might be awarded
- 7.7.20. If you can satisfy the Court that your neighbour is causing a "nuisance", the Court can issue an injunction to order the person to take steps to prevent the nuisance recurring and can also award damages.
- 7.7.21. You should seek your own legal advice if you are considering taking legal action and bear in mind that you may be responsible for not only your legal costs but those of the other party if unsuccessful, and you may have to bear some of their costs even if you are successful.

## 8. ACTION PLAN

- 8.1. The action plan highlights the key objectives of this Strategy and associated actions to achieve them. It also draws out previously identified actions within flood and water technical documents related to Northamptonshire, set out in [Appendix 4](#), which have not yet been implemented.
- 8.2. For each of the actions the aim, timescales for completion, costs and potential funding sources are provided where this information is available. Any partners identified to support the delivery of the actions are outlined. The general approach to funding is set out in Objective 6.
- 8.3. The action plan also identifies a summary of potential flood alleviation schemes. Most require further investigation to assess their viability, but have been compiled from information drawn from a number of different sources including: those submitted for government funding in the past but have been unsuccessful; schemes recommended within technical documents listed in [Appendix 4](#); and potential improvement and repair works identified by Northamptonshire Highways. [Map A11](#) in [Appendix 3](#) provides the locations of these potential schemes identified for further assessment.
- 8.4. Numerous actions have been identified which are county-wide. Where resources are limited, these actions will generally be undertaken firstly in those Priority Areas that are identified in [Section 6](#).
- 8.5. This action plan will be updated on an annual basis as and when new and improved information is provided.

**Table 8.1: Action Plan**

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
<b>Objective 1 – Collaborative Approach</b>						
Adopt a collaborative approach to managing local flood risk by working with local partners and stakeholders to identify, secure and optimise resources, expertise and opportunities for reducing flood risk and increasing resilience to flooding						
The Lead Local Flood Authority (LLFA) will explore opportunities for Flood Awareness Campaigns	A series of flood fairs were undertaken, which included public consultation on this Strategy and the Northampton Surface Water Management Plan (SWMP) throughout October, November and December 2011. Opportunities for future Flood Fairs should be explored and the first should relate to the launch of this Strategy once formally approved.	Ongoing	N/A	Northamptonshire County Council (NCC), Environment Agency (EA), Local Authorities (LAs), Water Companies (WCs)	NCC, EA, LAs, WCs	LLFA
The LLFA will continue to promote partnership working	Maintain communication between all partners and stakeholders.	Through the Flood and Water Management Framework	N/A	N/A	NCC, EA, LAs, WCs, Internal Drainage Board (IDB), Highways Agency (HA)	LLFA
The LLFA will create a flood crib sheet for council staff in each of the call centres to enable advice to be given to the public in a flood event	Training of council staff to ensure right questions are asked and information is recorded correctly and is saved on a database.	December 2013	N/A	N/A	NCC, LAs, EA, WCs	LLFA

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
The LLFA will investigate flooding incidents in accordance with Flood & Water Management Act (2010)	Undertake <a href="#">formal investigations of flood incidents</a> that occur and meet the thresholds set. Continue to send monthly reminders for partners to provide records of flooding incidents.	Ongoing	£10k per annum	N/A	NCC, EA, LAs, WCs, HA	LLFA
The LLFA will continue to secure and optimise resources	A resource plan has been produced, which outlines the resource implications of the act. The plan emphasises the need to retain existing staff as expertise and local knowledge is imperative.	Annually	N/A	N/A	NCC	LLFA
<b>Objective 2 – Local Flood Risk</b>						
Develop a greater understanding of local flood risk by improving the scope of local knowledge and understanding of current and future local flood risks						
Develop a Geographic Information System (GIS) tool for the LLFA	NCC currently has a GIS tool which is used for planning. This will continue to be used, but the results of the strategy and any SWMPs will be included in this tool to ensure that surface water is accurately presented and can be used to inform planning decisions.	Ongoing	N/A	N/A	NCC, LAs	LLFA
Develop a GIS Sustainable Drainage System (SuDS) tool for the SuDS Approval Body (SAB)	Use GIS to identify where infiltration SuDS could be used within Northamptonshire. This GIS layer has been procured and identifies bed rock geology within the county. This information can be used to advise on the drainage system to be used.	April 2014	£2k	NCC	NCC	LLFA

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
The LLFA will continue to develop and implement actions in <a href="#">highest priority wards</a> as well as developing the climate change implications for the county	The following activities will be given precedence: <ul style="list-style-type: none"> <li>• Data collection and registration of existing assets, particularly focussed on Ordinary Watercourses and surface water features;</li> <li>• Review of flooding hotspots and investigation into the cause of historic flooding along with the assessment of suitable flood mitigation schemes;</li> <li>• Designation of assets which have a significant flood defence function; and</li> <li>• Establish regular, proactive culvert inspection and maintenance regime on council owned assets.</li> </ul>	Ongoing	N/A	N/A	NCC, EA, LAs, WCs, HA	LLFA
Corby Borough Council (CBC) will carry out a Flood Risk Management (FRM) Plan of Corby	To gain a better understanding of surface water flooding mechanisms within Corby, the identification of Critical Drainage Areas and potential schemes for the subsequent development of priority flood alleviation measures. Establish ownership and maintenance regimes and a long-term action plan to manage and target local flood risk, particularly in higher risk areas.	2015	£75k	CBC, FDGiA, Local Levy	North Northamptonshire Joint Planning Unit (NN JPU), CBC, NCC, EA, Anglian Water Services (AWS), local residents and riparian owners	<a href="#">Corby SFRA</a>

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Kettering Borough Council (KBC) will carry out a SWMP for Kettering town	To gain a better understanding of surface water flooding mechanisms within Kettering, the identification of Critical Drainage Areas and potential schemes for the subsequent development of priority flood alleviation measures.	2015	£50k	To be determined	NN JPU, KBC, NCC, EA, AWS.	<a href="#">Kettering and Wellingborough SFRA</a>
KBC will undertake a SuDS Investigation for Alledge Brook and Potential for Strategic Flood Mitigation Storage	To investigate management of runoff from new developments within the Kettering East Sustainable Urban Extension (SUE), delivered through the use of local planning policy, sustainable drainage design and source control techniques i.e. SuDS. Investigate additional potential for strategic flood storage to be included within Kettering. (See <a href="#">Map A11</a> ref. 1)	2012 onwards	£50k to £100k	KBC, FDGiA	NN JPU, KBC, NCC, EA	<a href="#">North Northants Flood Risk Management Strategy (NN FRMS)</a>
KBC will undertake an investigation of Thorpe Malsor and Cransley Reservoir Catchment Storage Facility	To investigate the further improvement to flood levels on the Slade Brook through a second flood storage facility in the Thorpe Malsor and Cransley reservoirs catchment. (See <a href="#">Map A11</a> ref. 2)	2015-2030	£50k to £75k	KBC, FDGiA	NN JPU, KBC, NCC, EA	<a href="#">NN FRMS</a>
NCC will carry out a SWMP for the Borough of Wellingborough	To gain a better understanding of surface water flooding mechanisms within Wellingborough for the subsequent development of priority flood alleviation measures.	2015	£75k	NCC, FDGiA	NN JPU, BCW, EA, NR, AWS	<a href="#">Kettering and Wellingborough SFRA</a>
NCC will carry out a SWMP of East Northamptonshire	To gain a better understanding of surface water flooding mechanisms within East Northamptonshire for the subsequent development of priority flood alleviation measures.	2015	£75k	NCC, FDGiA	NN JPU, ENC, EA, AWS	<a href="#">East Northants SFRA</a>

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Planners will be informed of areas vulnerable to surface water flooding identified in the relevant SWMPs	To aid development control / management planning decisions.	Upon completion of SWMPs	N/A	N/A	NCC and LAs	<a href="#">SWMPs</a>
Anglian Water Services (AWS) will undertake a survey/CCTV investigation of highest risk areas of surface water drainage network identified in the Northampton SWMP	Partners to review the outputs of the Northampton SWMP and update their maintenance schedule as required.	2014	To be determined	AWS	AWS, NBC, NCC	<a href="#">Northampton SWMP</a>
NCC will carry out a SWMP of South Northamptonshire	To gain a better understanding of surface water flooding mechanisms within South Northamptonshire, for the subsequent development of priority flood alleviation measures	2015	£75k	NCC, FDGiA	SNC, WCs, EA	<a href="#">Daventry and South Northants Level 2 SFRA</a>
NCC will carry out a SWMP of Daventry District	To gain a better understanding of surface water flooding mechanisms within Daventry District, for the subsequent development of priority flood alleviation measures	2015	£75k	NCC, FDGiA	DDC, WCs, EA	<a href="#">Daventry and South Northants Level 2 SFRA</a>
Wood Burcote Brook Study	Develop a flood risk study for Wood Burcote Brook to confirm the level of flood risk along this watercourse particularly from low magnitude flood events. (See <a href="#">Map A11</a> ref. 3)	To be determined	To be determined	To be determined	To be determined	Great Ouse CFMP
Groundwater Study for Welland and Glens area	Carry out an investigation into the extent and impact of groundwater flooding and identify possible mitigation measures to reduce the current risk and raise awareness. (See <a href="#">Map A11</a> ref. 4)	To be determined	To be determined	To be determined	To be determined	Welland CFMP

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
<b>Objective 3 – Enhance the Natural and Historic Environment</b>						
Adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits and promote the wellbeing of local people						
The LLFA will continue to inform new and update development plan policies	Ensuring planning officers are aware of ongoing changes in national and local policy. Ensure lines of communication and roles & responsibilities are clear. Inform planning officers of the outputs of this Strategy.	As and when new plans are produced	N/A	N/A	NCC, EA, LAs	LLFA
The LLFA will assess the potential impact of flooding on designated environmental sites	Working in partnership to assess the potential positive, negative and neutral impacts of flooding on designated environmental sites, improve understanding of flood risk and to inform updates of the prioritisation assessment.	2014	£7.5k	NCC	NCC, WT, NE, EA	LLFA
The LLFA will assess the potential impact of flooding on designated heritage sites	Working in partnership to assess the potential positive, negative and neutral impacts of flooding on designated heritage sites, improve understanding of flood risk and to inform updates of the prioritisation assessment.	2014	N/A	N/A	NCC, English Heritage, LAs	LLFA
The LLFA will continue to promote the environmental actions outlined in Objective 3	Promote environmental actions including: <ul style="list-style-type: none"> <li>• de-culverting,</li> <li>• natural flood risk management,</li> <li>• blue/green infrastructure,</li> <li>• increased tree cover,</li> <li>• catchment sensitive farming</li> </ul>	Ongoing	N/A	N/A	NCC, EA, LAs, WCs, NE, IDB, WT, HA	LLFA
The LLFA to promote the actions resulting from WFD investigations for heavily modified waterbodies	Waterbody investigations resulted in a number of actions to improve the status of heavily modified waterbodies, as opportunities arise.	Ongoing	Not yet determined	Not yet determined	Not yet determined	EA

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Investigate potential for removal of structures and changes in land use in Welland and Glen CFMP policy area	Identify opportunities where existing water level control structures, such as mills and sluices, can be removed to improve fish passage and improve aquatic habitats. In addition, changes in land use, development of sustainable farming practices and environmental enhancement should be investigated to mitigate an increase in flooding in the future. (See <a href="#">Map A11</a> ref. 5)	Not yet determined	Not yet determined	Not yet determined	Not yet determined	Welland CFMP
<b>Objective 4 – Preparedness and Resilience</b>						
Reduce the harmful consequences of local flooding to communities and human health through proactive actions, activities and education programmes that enhance preparedness and resilience to local flood risk, and contribute to minimising community disruption						
NCC will review and update the Multi Agency Flood Plan (MAFP) to reflect the findings of this Strategy and any completed SWMPs	Disseminate outputs of any SWMPs to the Local Resilience Forum (LRF).	As and when completed	N/A	N/A	LRF, LAs, EA	LLFA
The LLFA to undertake a pilot project to develop community flood resilience	Developing a community flood toolkit for 15 communities. The tools and guidance will then be available to other communities through a web portal. The project's approach will be to help communities to understand their flood risk and enable them to work out local resilience solutions.	March 2015	£300k	Defra grant	NCC, EA, LAs, WCs, Parish Councils, communities	LLFA
The LLFA will explore flood warning linked CCTV	Linking different systems together, which already exist, to see 'real time' flooding incidents.	2015	£25k	Partnership	NCC,EA, LAs	LLFA
The EA to continue with flood warning activities and improvements	The EA to continue with flood warning activities and improvements, as an important measure to increase resilience.	Ongoing	N/A	N/A		CFMPs

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
The LRF will continue to develop business continuity, emergency and evacuation plans	Strategy outputs to inform the Multi Agency Flood Plan.	Ongoing	N/A	N/A	LRF, NCC	<a href="#">MAFP</a>
The LRF will review essential and critical infrastructure protection	MAFP to include Critical Infrastructure locations and protection measures.	2014	To be determined	To be determined	LRF, NCC	<a href="#">MAFP</a>
Local Authorities will investigate the capacity to undertake an initial study to identify targeted maintenance and improvements to ordinary watercourses/channels within key areas to ensure their drainage capacity is fully utilised	To improve the condition of ordinary watercourses and set up a mechanism for future management and maintenance.	2015	£10k to £30k	LAs	NCC, LAs, EA, WCs, local residents and riparian owners.	<a href="#">NN FRMS</a>
Northampton Borough Council (NBC) and NCC will investigate the viability of improvement measures in high risk areas as identified by the Northampton SWMP	Secure funding for property level protection or flood schemes for the areas at risk of potential surface water flooding identified within the SWMP. Potential locations for schemes include: Delapre Park; Eastfield Park; Abington Park; St Davids/Kingsley; New Duston, St Georges Avenue Park; Hardingstone; and Brackmills. (See <a href="#">Map A11</a> ref. 6)	2014-2015	To be determined	FDGiA, Partnership	NBC, NCC, EA, AWS	<a href="#">Northampton SWMP</a>
NBC will investigate the requirement for maintenance regimes in highest risk areas identified in the Northampton SWMP	Highest risk areas will be identified by the Northampton SWMP	2014	To be determined	Partnership	NBC, AWS, EA, NCC	<a href="#">Northampton SWMP</a>

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
AWS and EA will undertake investigation into the maintenance and clearance of surface water outfalls on the River Nene as identified in the Northampton SWMP	Regular inspections of outfalls	Ongoing	N/A	Partnership	NBC, AWS, EA, NCC	<a href="#">Northampton SWMP</a>
Skew Bridge and Raunds Hog Dyke Culvert Improvements Study	Undertake a study to assess the most sustainable approach to manage future flood risk in this area as a result of climate change. This could include opening up river channels and re-creating river corridors, so that there is more space for rivers to flow through the towns. To achieve this, a combination of improvements to the channel capacity by increasing the size of culverts and active land use planning should be considered. (See <a href="#">Map A11</a> ref. 7)	Dependent upon FDGiA funding, yet to be determined	Scheme cost: £2,140k	Local Community, FDGiA and Partnership	EA, NCC, ENC	<a href="#">River Nene CFMP</a> and FDGiA funding bid
Nether Heyford Flood Alleviation Scheme	To investigate flood alleviation solutions at Nether Heyford. (See <a href="#">Map A11</a> ref. 8)	Dependent upon FDGiA funding, yet to be determined	Scheme Cost: £1,300k	Local Community, FDGiA, Partnership	EA, NCC, SNC	FDGiA funding bid
Yelvertoft Flood Alleviation Scheme Investigation Study	A study to investigate the potential for increased floodwater storage on undeveloped floodplains in order to increase attenuation and reduce flood risk to communities locally downstream.(See <a href="#">Map A11</a> ref. 9)	Dependent upon FDGiA funding, yet to be determined	Scheme Cost: £158k	Local Community, FDGiA, partnership	EA, DDC, NCC	EA pre-feasibility study

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Nene Lock Reversal and Nene Structure Refurbishment Study	Nene Lock Reversal and Nene Structure Refurbishment – required for Health and Safety. (See <a href="#">Map A11</a> ref. 10)	Dependent upon FDGiA funding, yet to be determined	Scheme: Cost £156k	FDGiA, Partnership	EA, LAs, NCC	FDGiA funding bid
Welland and Nene Property Level Protection	Investigate locations where Property Level Protection is a viable option for mitigating flood risk to residential properties.	Dependent upon FDGiA funding, yet to be determined	£250k	Local Community, FDGiA, partnership	EA, LAs, NCC, communities	FDGiA funding bid
Islip Sluice Refurbishment	Refurbish the sluice structure at Islip to ensure its continued operation, and reduce health and safety risk to Environment Agency staff and contractors. (See <a href="#">Map A11</a> ref. 11)	Dependent upon FDGiA funding, yet to be determined	£110k	FDGiA	EA, ENC, NCC	FDGiA funding bid
Wootton Brook Flood Balancing Scheme	Investigate opportunity for a flood balancing scheme for Wootton Brook. The project could include a combination of channel improvements and strategic flood balancing areas. Works of this nature would provide an opportunity for environmental improvements. Because of the importance and proximity of this natural corridor there is a strong opportunity to meet the aspirations of the Nature Improvement Area and Water Framework objectives for achieving "Good status" and "No deterioration".(See <a href="#">Map A11</a> ref. 12)	Dependent upon FDGiA funding, yet to be determined	£510k	FDGiA	EA, NBC, NCC	FDGiA funding bid

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Harpers Brook Flood Alleviation Scheme	Investigate flood risk along Harpers brook and review of the November 2012 flood incident. Evaluate options in relation to the new partnership funding approach, including channel improvements, upstream flood storage, improvements to the Mill Race diversion channel, and individual property protection. (See <a href="#">Map A11</a> ref. 13)	Dependent upon FDGiA funding, yet to be determined	£102k	FDGiA	EA, CBC,ENC, NCC	FDGiA funding bid
Kettering (Slade Brook) Flood Storage Study at Glendon Hall	Study to investigate the provision of 300,000m <sup>3</sup> of flood storage on the Slade Brook upstream of the railway culvert. The construction of this facility could relax requirements for developers in the River Ise catchment to attenuate flows to greenfield rates on-site, provided there is sufficient capacity in the sewer system to transport surface water to the river without flooding. To be assessed as part of the Kettering SWMP. (See <a href="#">Map A11</a> ref. 14)	3-15 years	Study Cost: As per Kettering SWMP Scheme Cost: £2,300k	Developer, Partnership	KBC, NCC, Developer, AWS, EA	<a href="#">NN FRMS, Kettering Level 2 SFRA and Kettering Town Centre Area Action Plan.</a>
Harrowden Brook Flood Storage Reservoir Study	Study to investigate the potential opportunity for reducing flood levels downstream of the Castleridge site by enhancing the Harrowden Road flood storage reservoir in Wellingborough.(See <a href="#">Map A11</a> ref. 15)	3 - 15 years	Study Cost: £75k-£150k	NN JPU, FDGiA, Developer	NN JPU, NCC, EA, DEFRA, Developer	<a href="#">NN FRMS</a>
Swanspool Brook, Flood Storage Reservoir Study	A study into the Wilby Flood Storage Reservoir, which currently exists on Swanspool Brook in Wellingborough, located upstream of the A4500. The Flood Storage Reservoir has a standard of protection of 2% (i.e. 1 in 50yr) AEP. Further investigations are required to assess any options for improvement.(See <a href="#">Map A11</a> ref. 16)	1-3 years	Study Cost: £50k-£100k	NN JPU, DEFRA, Developer, Partnership	NN JPU, WBC, NCC, EA, DEFRA, Developer	<a href="#">NN FRMS</a>

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Corby Culvert – Sewage Works additional storage and vegetation clearance	Mitigation measures are required within the Corby Borough to manage flood risk in the future and as a result of further development. The Water Cycle Strategy has assessed the feasibility of different schemes and has highlighted a constricting culvert downstream of the Sewage Treatment Works (STW) on the Southern Arm of Willow Brook. The latest update to the Water Cycle Strategy work identifies that works are required in the vicinity of the sewerage treatment work to mitigate for proposed increase in discharge to accommodate new development. (See <a href="#">Map A11</a> ref. 17)	1-3 years	Scheme cost: £305k	CBC Cost Apportionment Mechanism, Growing Places fund	CBC, NNJPU, AWS, NCC, EA, DEFRA	<a href="#">Corby Culvert – Water Cycle Strategy update</a>
Attenuation Storage for Waterside development Brampton Branch and St Peter's Way	Attenuation storage required to mitigate for surface water flooding and additional discharge into Brampton Branch. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 18)	Related to growth	Scheme cost: £906k	NBC, Developer, regeneration funding	NBC, NCC, AWS, EA, developer	<a href="#">Northampton CAAP drainage study</a>
Attenuation storage at either Becketts Park, Avon Nunn Mills Ransome Road, Southbridge West or Nene Meadows	Additional attenuation storage of 2,500m <sup>3</sup> to mitigate the impacts of development proposals. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 19)	Related to growth	Scheme cost: £437k	NBC, Developer, regeneration funding	NBC, NCC, AWS, EA, developer	<a href="#">West Northants Water Cycle Strategy</a>
Flood Storage between Weedon and Kislingbury Study	A study to investigate flood storage potential to mitigate future flood risk to downstream Northampton. (See <a href="#">Map A11</a> ref. 20)	3-15 years	Study Cost: £20 – 100k Scheme cost: £8,000k	Partnership, FDGiA	EA, NCC, SNC, DDC	<a href="#">WN WCS</a> and <a href="#">Northampton CAAP drainage study</a>

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Northampton West Sustainable Urban Extension (SUE) Flood attenuation measures	Flood storage required to mitigate increase in risk posed by additional runoff from the proposed new development to the West of Northampton. Development could comprise flood storage upstream on Dallington Brook. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 21)	Related to growth	To be determined	Developer, potential SAB (maintenance)	EA, NCC, WN JPU, NBC, DDC	<a href="#">Northampton SFRA</a>
Northampton South Sustainable Urban Extension (SUE) Flood attenuation measures	Flood attenuation storage required to mitigate the impacts of the proposed development at Northampton South SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 22)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, SNC, NCC, WN JPU	<a href="#">Northampton SFRA</a>
Northampton North Sustainable Urban Extension (SUE) Flood attenuation measures	Potential improvements to Overstone Park Lake for use as runoff attenuation storage to mitigate the impacts of the proposed development at Northampton North SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 23)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, NCC, DDC, WN JPU	<a href="#">Northampton SFRA</a>
Northampton South of Brackmills Sustainable Urban Extension (SUE) Flood attenuation measures	Flood attenuation storage required to mitigate the impacts of the proposed development at Northampton South of Brackmills SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 24)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, NCC, SNC, WN JPU	West Northants Joint Core Strategy Pre-submission

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Northampton Kings Heath Sustainable Urban Extension (SUE) Flood attenuation measures	Flood attenuation storage required to mitigate the impacts of the proposed development at Northampton Kings Heath SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 25)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, NCC, NBC, WN JPU	West Northants Joint Core Strategy Pre-submission
Daventry North East Sustainable Urban Extension (SUE) Flood attenuation measures	Flood attenuation storage required to mitigate the impacts of the proposed development at Daventry North East SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 26)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, NCC, DDC, WN JPU	West Northants Joint Core Strategy Pre-submission
Towcester South Sustainable Urban Extension (SUE) Flood attenuation measures	Flood attenuation storage required to mitigate the impacts of the proposed development at Towcester South SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 27)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, NCC, SNC, WN JPU	West Northants Joint Core Strategy Pre-submission
Brackley East Sustainable Urban Extension (SUE) Flood attenuation measures	Flood attenuation storage measures are required to mitigate the impacts of the proposed development at Brackley East SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 28)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, NCC, SNC, WN JPU	<a href="#">Northampton SFRA</a>
Brackley North Sustainable Urban Extension (SUE) Flood attenuation measures	Flood attenuation storage measures are required to mitigate the impacts of the proposed development at Brackley North SUE. Scheme to be assessed by developer and details to be provided as part of the planning process. (See <a href="#">Map A11</a> ref. 29)	Related to growth	To be determined	Developer, potential SAB (maintenance)	Developer, NCC, SNC, WN JPU	West Northants Joint Core Strategy Pre-submission

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
West End, Silverstone Flood Alleviation Scheme Study	Improvements to the Church Street culvert situated downstream of properties in West End Silverstone. Options considered include: replacement of existing culvert; new box culvert upstream from existing structure with a new diversion channel through the field; or new box culvert upstream from existing structure with a new diversion channel around the boundary of Watergate. The scheme could benefit 12 properties. (See <a href="#">Map A11</a> ref. 30)	Dependent upon FDGiA funding	Scheme Cost: £215k	NCC as LLFA, FDGiA, Local Community	EA, SNC, NCC	FDGiA funding bid
Kings Sutton, Wales Street (Black Brook) Flood Alleviation Scheme Study	Major channel improvements to the River Cherwell would be extensive, costly and environmentally sensitive. Local embankment and floodwall works are likely to be most viable, but would be complex. The Black Brook in part could be re-aligned to the west to leave room for an earthen embankment on its old alignment. The watercourse draining Kings Court and the northern part of the village would have to be piped through the defence and provided with a flapped outfall. A pumping station may be required for coping with flows arriving behind the embankment works during flood locked conditions. The scheme could benefit 17 properties. (See <a href="#">Map A11</a> ref. 31)	Dependent upon FDGiA funding	Scheme Cost: £204k	Local Community, FDGiA, EA, SNC	NCC, EA, SNC	FDGiA funding bid

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Kings Sutton Windsor Close Flood Alleviation Scheme	Action needed due to increased frequency of near misses. Growing concern as village overall contains 36 houses which flood internally. Ongoing maintenance of flood defence will be essential and should include residents who benefit. Will include upsizing the culverted watercourse system. (See <a href="#">Map A11</a> ref. 32)	Dependent upon FDGiA funding	Scheme Cost: £130k	SNC, Local Community, EA, FDGiA	SNC	FDGiA funding bid
Chacombe Flood Alleviation Scheme Study	Chacombe Brook runs through gardens and there are many low lying properties along the bank of the brook. The flooding from the brook is flashy. A means of resolution other than by watercourse improvements or attenuation is not feasible – due to the responsiveness of the catchment individual property protection will not be effective. (See <a href="#">Map A11</a> ref. 33)	Dependent upon FDGiA funding	Scheme Cost: £123k	SNC, Local Community, FDGiA, EA	NCC, EA, SNC	FDGiA funding bid
Highway Improvements Investigation – Berry Lane, Wootton	Improve highways drainage in Berry Lane area of Wootton to reduce risk of flooding to properties. (See <a href="#">Map A11</a> ref. 34)	Dependent on FDGiA funding	Scheme estimate: £407k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Highway Improvements Investigation – Hall Yard, Kings Cliffe	Improve highways drainage along Hall Yard, Kings Cliffe to reduce risk of flooding. (See <a href="#">Map A11</a> ref. 35)	Dependent on FDGiA funding	Scheme estimate: £188k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Highway Improvements Investigation – Cosgrove Road, Old Stratford	Poor highways drainage has resulted in surface water flooding of properties on Cosgrove Road. Improve highways drainage by installing new system along entire length of Cosgrove Road. (See <a href="#">Map A11</a> ref. 36)	Dependent on FDGiA funding	Scheme estimate: £308k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Highway Improvements Investigation – East Street, Long Buckby	Properties along East Street are at risk of flooding from agricultural runoff and surface water, a number have flooded internally. Improve highways drainage by installing new system along East Street and improve field drainage along back of properties. (See <a href="#">Map A11</a> ref. 37)	Dependent on FDGiA funding	Scheme estimate: £504k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Highway Improvements Investigation – Main Road, Shutlanger	Improve highways drainage by upgrading existing antiquated system along Main Road. Also potential upgrade of culverts along watercourse. (See <a href="#">Map A11</a> ref. 38)	Dependent on FDGiA funding	Scheme estimate: £399k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Highway Improvements Investigation – Woodland Avenue & Grosvenor Road, Barton Seagrave	The estate is currently drained by soakaways which cannot cope with volume of runoff. Improve highways drainage by installing new system throughout estate. (See <a href="#">Map A11</a> ref. 39)	Dependent on FDGiA funding	Scheme estimate: £2815k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Highway Improvements Investigation – Elmington A605	Surface water and agricultural runoff pose a risk of flooding to properties along A605, and regularly result in closure of this key highway route. Improve capacity of field drainage and small watercourses upstream of Elmington and downstream to the Nene. (See <a href="#">Map A11</a> ref. 40)	Dependent on FDGiA funding	Scheme estimate: £231k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Highway Improvements Investigation – Duck End & Freeman's Lane, Denford	A small watercourse running through Denford has flooded properties, exacerbated by surface water runoff from agricultural land around the village. Improve watercourse capacity through Denford by providing an attenuation storage area upstream of Duck End, or diverting main flow of watercourse. (See <a href="#">Map A11</a> ref. 41)	Dependent on FDGiA funding	Scheme estimate: £285k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Highway Improvements Investigation – Silver Street North, Chacombe	One property is regularly affected by poor highways drainage. Improve drainage capacity by installing culvert around property to a soakaway. (See <a href="#">Map A11</a> ref. 42)	Dependent on FDGiA funding	Scheme estimate £25k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
High Street, Charwelton	Surface water and an ordinary watercourse regularly flood Charwelton, resulting in internal property flooding and closure of a key highway route. Improve highways drainage by increasing capacity of existing culvert along High Street. (See <a href="#">Map A11</a> ref. 43)	Dependent on FDGiA funding	Scheme estimate: £1,578k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Blackmile Lane, Grendon Flood Risk Management scheme	Blackmile Lane in Grendon has been flooded due to extreme volumes of runoff. Proposed to reinstate field drainage, install new surface water system along Blackmile Lane, and upgrade existing culvert on Gibbards Arm. (See <a href="#">Map A11</a> ref. 44)	Dependent on FDGiA funding	Scheme estimate: £443k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
Sywell Flood Risk Management Scheme	Holcot Lane and Stonelea Road have flooded from agricultural runoff. Proposed to reinstate and upgrade field drainage. (See <a href="#">Map A11</a> ref. 45)	Dependent on FDGiA funding	Scheme estimate: £54k incl. investigation	Capital/revenue funding from NCC, FDGiA	NCC, LA, WC, EA, communities	NCC
<b>Objective 5 – Flood Risk and Development</b>						
Minimise the increase in local flood risk that may arise from new development by producing guidance, setting standards, promoting the sustainable use of water and supporting the development of local policies and guidance, discouraging wherever possible surface water runoff in new and future developments and where possible influencing or supporting developments that seek to reduce existing flood risk						
The LLFA will set up the SuDS Approval Body (SAB)	Determine SAB applications, enforcement, management, adoptions, designations, appeals and future maintenance.	Implementation in line with Defra timescales	Costs covered by application process and maintenance covered by Defra.	Applicants, Defra, NCC	NCC, LAs, EA, WCs, IDB	LLFA

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
The LLFA will create guidance in relation to Sustainable Drainage	Working in partnership to produce a document setting out: the SAB process in Northamptonshire; the legislation and guidance; links to green and blue infrastructure and landscape; sustainable use of water; water quality treatment processes; principles of adoption and requirements; SuDS features in private ownership; designation; and other environmental issues. To be adopted by NCC as SAB and each LPA.	Spring 2014	£35k	NCC	NCC, LAs, EA, WCs, IDB	LLFA
The LLFA will create guidance in relation to Groundwater Flooding	Working in partnership to produce a document setting out: what constitutes groundwater flooding, areas susceptible to groundwater flooding in Northamptonshire, and potential mitigation measures.	2014	N/A	N/A	NCC, LAs, EA, WCs, IDB	LLFA
<b>Objective 6 – Economically Sustainable Approach</b>						
Ensure the financial viability of flood related schemes through the development of appropriate policies and assessment tools to ensure that flood risk management measures provide value for money whilst minimising the long-term revenue costs. Seeking to use natural processes where possible or source the costs of any maintenance from the financial beneficiaries of the development.						
Funding arrangements	LLFA to continue to develop and establish short and long term funding arrangements to deliver the requirements of the Flood and Water Management Act.	Ongoing	To be determined	To be determined	NCC, IDB, LAs, WCs, EA	LLFA
Future Funding Bids	LLFA to continue to bid for relevant funding as and when the opportunity arises, to support future projects and flood alleviation schemes i.e. Flood Defence Grant in Aid funding.	Ongoing	To be determined	FDGiA	NCC, IDB, LAs, WCs, EA	LLFA

Action	Aim	Time Scale	Estimated Cost	Potential Funding Source	Partners	Source of Information
Influence funding arrangements	LLFA to ensure Infrastructure Development Plans, Community Infrastructure Strategies and Transport Infrastructure Plans are influenced by this Strategy and that developer funding is sought where considered appropriate and necessary.	Ongoing	To be determined	To be determined	NCC, IDB, LAs, WCs, EA	LLFA
Add new schemes to the relevant Infrastructure Delivery Plan or Community Infrastructure Levy list	When information or studies become available, any schemes, including their costs, should be identified and added to the Infrastructure Delivery Plan or Community Infrastructure Levy list.	Ongoing	N/A	N/A	NCC	LLFA
<b>Objective 7 – Riparian Responsibilities</b>						
Encourage flood management activities by private owners of ordinary watercourses and flood defence structures as well as limit the development of constrictions on ordinary watercourses						
The LLFA will actively encourage Flood Risk Management activities by Riparian owners in <a href="#">highest priority wards</a>	This will include making Riparian owners aware of their roles and responsibilities. Flood risk management authorities will also use their permissive powers to reduce flood risk as appropriate.	Ongoing	N/A	N/A	NCC, LAs, EA, WCs, IDB	LLFA

## 9. STRATEGY MONITORING AND REVIEW

- 9.1. Continued monitoring, review and development of this Strategy are essential to ensure that local flood risk management is responsive to change. This ongoing monitoring and review will be undertaken through the Northamptonshire Flood and Water Management Framework by the [Local Flood Risk Operational Group](#), and will be overseen by the [Strategic Flood Risk Management Board](#).
- 9.2. Although there is no statutory deadline for the Strategy to be produced or updated, regular review will ensure that local flood risk management is based on the best and most up to date knowledge so that partners can successfully manage flood risk both now and in the future.
- 9.3. This Strategy will be updated every three years from the date of final approval and the action plan will be updated annually. Key triggers may also require the update of specific sections of this Strategy more regularly, including if the following occur:
  - Amendments to partner responsibilities;
  - Updates to legislation;
  - Alterations in the nature or understanding of local flood risk; and/or
  - A significant flood event.
- 9.4. In these circumstances the triggers will be discussed with the [Local Flood Risk Operational Group](#) and a decision made as to whether this Strategy requires a full or partial review. If only minor changes are required these will be undertaken and this Strategy will be updated and posted on the council's Flood and Water Management [web pages](#), with an explanation as to what the amendments are and the date of review.

### *Monitoring*

- 9.5. The purpose of monitoring is twofold, as monitoring needs to consider both beneficial and adverse effects. Firstly, to measure the actual significant effects of implementing the objectives and actions of this Strategy and measure contribution towards achievement of desired objectives. Secondly, it assists in identification of unforeseen adverse effects and the need to undertake appropriate action.
- 9.6. The approach taken to monitoring will be objective and target led. It is not necessary to monitor everything, or monitor an effect indefinitely; instead monitoring should be focused on significant effects. The [Action Plan](#) will be fed into the Directorate plan, which is regularly monitored and reviewed.
- 9.7. Monitoring should aim to ensure that the policies and actions contribute towards the strategies objectives, as well as the Strategic Environment Assessment objectives.

### *Review*

- 9.8. Through developing this Strategy there are now clear objectives for managing local flood risk in Northamptonshire as well as an associated action plan for delivering these objectives. This Strategy will be the focal document for all flood risk matters in the County, and will be informed by and will sign-post to all relevant technical flood risk work undertaken throughout the county in the future.
- 9.9. In preparing this Strategy there is now a greater understanding of local flood risk issues in Northamptonshire. The different roles and responsibilities for managing local flood risk have now been clarified and formally set out to avoid confusion.
- 9.10. This Strategy and associated [Action Plan](#) is a "living document" and will be regularly reviewed to test effectiveness and updated as required.

## **APPENDIX 1: GLOSSARY**

Breach	Flooding caused by the constructional failure of a flood defence or other structure that is acting as a flood defence.
Catchment Flood Management Plans (CFMP)	Catchment Flood Management Plans have been produced by the Environment Agency and are high-level planning tools that set out objectives for flood risk management for each river catchment and estuary. They also identify flood risk management policies that are economically practical, have a potential life of 50 to 100 years, and will aid partnership working to put them in place. CFMPs consider inland risk from rivers, surface water, groundwater and tidal flooding but do not consider sewer flooding. The CFMPs that cover Northamptonshire are: River Nene Catchment Flood Management Plan (December 2009), Thames Catchment Flood Management Plan (December 2009), Draft Great Ouse Catchment Flood Management Plan Summary Report – (April 2010) and the River Welland Catchment Flood Management Plan Summary Report (December 2009).
Civil Contingencies Act (2004)	The Civil Contingencies Act establishes a framework for emergency planning and response to large scale emergencies, such as flooding. The Act defines the obligations of different organisations and provides additional powers for the Government during an emergency. The Act designates the County Council as a category one responder, meaning it has a legal responsibility to assess the risk of emergencies and put plans in place to manage them.
Climate Change	A long-term change in the statistical distribution of weather patterns over periods of time that range from decades to millions of years. It may be a change in the average weather conditions or a change in the distribution of weather events with respect to an average, for example, greater or fewer extreme weather events. Climate change may be limited to a specific region, or may occur across the whole planet.
Climate Change Act (2008)	An Act that requires a UK-wide climate change risk assessment every five years, accompanied by a national adaptation programme that is also reviewed every five years. It also requires public bodies and statutory organisations such as water companies to report on how they are adapting to climate change.
Commencement Order	An instruction that brings a defined aspect of legislation into force.
Conservation of Habitats and Species Regulations (2010)	An Act which transposed the Habitats Directive into UK law. The regulations aim to help maintain and enhance biodiversity throughout the EU, by conserving natural habitats, flora and fauna. The main way it does this is by establishing a coherent network of protected areas and strict protection measures for particularly rare and threatened species.

Critical Infrastructure	A term used to describe the assets that are essential for the functioning of a society and economy. Most commonly associated with the term are facilities for: electricity generation, transmission and distribution; gas production, transport and distribution; oil and oil products production, transport and distribution; telecommunication; water supply (drinking water, waste water/sewage, stemming of surface water (e.g. dikes and sluices)); agriculture, food production and distribution; heating (e.g. natural gas, fuel oil, district heating); public health (hospitals, ambulances); transportation systems (fuel supply, railway network, airports, harbours, inland shipping); financial services (banking, clearing); and security services (police, military).
Culvert	A closed conduit used for the conveyance of water under a roadway, railroad, canal, property, or other impediment.
Defence (Flood Defence)	A structure that alters the natural flow of water or flood water for the purposes of flood defence, thereby reducing the risk of flooding. A defence may be 'formal' (a structure built and maintained specifically for flood defence purposes) or 'informal'/'defacto' (a structure that provides a flood defence function but has not been built and/or maintained for this purpose).
EC Floods Directive	A European Directive that has been transposed to UK law through the Flood Risk Regulations (2009).
Environment Agency	An Executive Non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs and an Assembly Sponsored Public Body responsible to the National Assembly for Wales. The Environment Agency's principal aims are to protect and improve the environment, and to promote sustainable development. They play a central role in delivering the environmental priorities of central government and the Welsh Assembly Government through our functions and roles.
Flood	A flood is an overflow of an expanse of water that submerges land. Both the Flood and Water Management Act (2010) and the Flood Risk Regulations (2009) state that it doesn't matter whether a flood is caused by: heavy rainfall; a river overflowing its banks of being breached; a dam overflowing or being breached; tidal waters; groundwater; or anything else including a combination of factors. However, both state that a 'flood' does not include: a flood caused from any part of a sewerage system, unless wholly or partly caused by an increase in the volume of rainwater (including snow and other precipitation) entering or otherwise affecting the system; or a flood caused by a burst water main.
Flood Map	A multi-layered map which provides information on flooding from rivers and the sea for England and Wales. The Flood Map also has information on flood defences and the areas benefiting from those flood defences.
Flood Map for Surface Water	The most recently produced data set developed by the Environment Agency. The Flood Map for Surface Water better represents the mechanisms that cause surface water flooding.

Flood and Water Management Act (2010)	The Act brings together the recommendations of the Pitt report and previous policies, to improve the management of water resources and create a more comprehensive and risk based regime for managing the risk of flooding from all sources. The Act reinforces the need to take an integrated approach to the management of flooding and places a number of roles and responsibilities on local authorities, such as the County Council, under the role of Lead Local Flood Authority.
Flood Hazard Map	A map that defines flood risk areas and shows: the likely extent (including water level or depth) of possible floods; the likely direction and speed of flow of possible floods; and whether the probability of each possible flood occurring is low, medium or high (in the opinion of the person preparing the map).
Flood Resilience	Actions taken which allow the ingress of flood water through a property but enable swift recovery after the flood event. Flood resilience measures may include (among others) flood-resistant construction materials, raised electricity sockets and water-resistant flooring.
Flood Resistance	Actions taken to prevent to ingress of flood water to a property. Flood Resistance measures may include flood barriers placed over doorways.
Flood Risk	Flood risk is a combination of two components: the chance (or probability) of a particular flood event occurring and the impact (or consequence) that the event would cause if it took place.
Flood Risk Map	A map showing: the number of people living in the area who are likely to be affected in the event of flooding; the type of economic activity likely to be affected in the event of flooding; any industrial activities in the area that may increase the risk of pollution in the event of flooding; any relevant protected areas that may be affected in the event of flooding; any areas of water subject to specified measures or protection for the purpose of maintaining the water quality that may be affected in the event of flooding; and any other effect on human health, economic activity or the environment (including cultural heritage).
Flood Risk Management (FRM)	A process to reduce the probability of occurrence through the management of land, river systems and flood defences and reduce the impact through influencing development on flood risk areas, flood warning and emergency response.
Flood Risk Management Authority	Includes: (a) the Environment Agency, (b) a lead local flood authority, (c) a district council for an area for which there is no unitary authority, (d) an internal drainage board, (e) a water company, and (f) a highway authority.
Flood Risk Management Plan	A plan for the management of a significant flood risk. The plan must include details of: objectives set by the person preparing the plan for the purpose of managing the flood risk; and the proposed measures for achieving those objectives (including measures required by any provision of an Act or subordinate legislation).

The Flood Risk Regulations	The Flood Risk Regulations were enacted in December 2009 to implement the requirements of the EU Floods Directive, which aims to provide a consistent approach to managing flood risk across Europe. The regulations outline the roles and responsibilities of the various authorities consistent with the Flood and Water Management Act 2010 and provide for the delivery of the outputs required by the directive. The Directive requires Member States to develop and update a series of tools for managing all sources of flood risk.
Flood Zones	Nationally consistent delineation of 'high' and 'medium' flood risk, published on a quarterly basis by the Environment Agency
Flood Zone 1 Low Probability	Defined as an area only at risk of flooding from flood events with an Annual Exceedance Probability (AEP) of less than 0.1% (1 in 1000). The probability of flooding occurring in this area in any one year is less than 0.1%.
Flood Zone 2 Medium Probability	Defined as an area at risk of flooding from flood events with an Annual Exceedance Probability (AEP) of between 1% (1 in 100) and 0.1% (1 in 1000). The probability of flooding occurring in this area in any one year is between 1% and 0.1%.
Flood Zone 3a High probability	Defined as an area at risk of flooding from flood events with an Annual Exceedance Probability (AEP) of greater than 1% (1 in 100r). The probability of flooding occurring in this area in any one year is greater than 1%.
Flood Zone 3b Functional Floodplain	Defined as land where water has to flow or be stored in times of flood. Usually defined as areas at risk of flooding from flood events with an Annual Exceedance Probability (AEP) of greater than 5% (1 in 20) design event. The probability of flooding occurring in this area in any one year is greater than 5%.
Fluvial	The processes associated with rivers and streams and the deposits and landforms created by them.
GIS	Geographic Information System. GIS is any system which stores geographical data, such as elevations, location of buildings and extent of flood outlines.
Groundwater	Water located beneath the ground surface, either in soil pore spaces or fractures in rock.
Gully	An artificial channel serving as a gutter or drain.
Land Drainage Act	The Land Drainage Act, enacted in December 1991, aimed to consolidate existing water legislation and outlined the duties and powers to manage land drainage for a number of bodies including internal drainage boards and local authorities.
Main River	All watercourses shown on the statutory main river maps held by the Environment Agency and the Department for Environment, Food and Rural Affairs. This can include any structure or for controlling or regulating the flow of water into, in or out of the channel. The Environment Agency has permissive power to carry out works of maintenance and improvement on these rivers.

Medium Term Plan	This Medium Term Plan shows flood and coastal management schemes which the Environment Agency Board has allocated Defra grant in aid and have been approved by the Regional Flood and Coastal Committees.
National Flood and Coastal Erosion Risk Management Strategy	The Environment Agency's National Strategy was published in May 2011 and provides an overview of how flood risk and the risk of coastal erosion will be managed across England. The aims and objectives of the National Strategy have been translated onto a local scale through this Local Strategy for the County Council.
National Planning Policy Framework (NPPF)	Sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.
Ordinary Watercourse	Any section of watercourse not designated as a main river.
Pitt Review	Sir Michael Pitt carried out an independent review of the 2007 floods and made a number of recommendations for future flood risk management. In particular, he recommended that local authorities should play a more significant role in tackling local problems of flooding and coordinating all relevant agencies. Many of the recommendations of The Pitt Review have been enacted through the Flood and Water Management Act.
Planning Policy Statement 25: Development and Flood Risk, Practice Guide	Sets out the Government's spatial planning policy relating to development and flood risk. Its aims are to ensure that flood risk is taken into account at all stages in the planning process, to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall. This practice guide provides guidelines on how to implement development and flood risk policies by the land use planning system. The guide also includes working examples through case studies. This Practice Guide (at Appendix B) contains a checklist to help developers and applicants to prepare an appropriate, site-specific flood risk assessment in accordance with the policy in PPS25, and the advice in the Practice Guide.
Pluvial Precipitation	Direct runoff as a result of rainfall and the processes associated with it. Describes rain, sleet, hail, snow and other forms of water falling from the sky.

Preliminary Flood Risk Assessment (PFRA)	The Preliminary Flood Risk Assessment is a process involving an assessment of past floods and the possible harmful consequences of future floods, leading to the identification of Areas of Significant Risk. All LLFAs must prepare a PFRA report in relation to flooding in the LLFA's area. The LLFA is not required to include information about flooding from the sea, main rivers and reservoirs unless the authority thinks that it may affect flooding from another source. The floods to be included are those which had significant harmful consequences for human health, economic activity or the environment (including cultural heritage), or which would have significant harmful consequences for those matters if they were to occur now. The report may ignore past floods of a kind that are not likely to occur now.
Priority 1 and Priority 2 Roads	The roads within Northamptonshire have been prioritised for the purposes of gritting. Trunk/major roads (including M1, A14, A45, A5) are gritted by the Highways Agency. Other A roads together with certain B roads and other roads are called the Precautionary Network (P1). The Adverse Network (P2) covers certain links to villages not on the precautionary network as well as certain bus routes and industrial estates. Maps of the P1 and P2 roads within Northamptonshire can be found on the <a href="#">County Council's web pages</a> .
Regional Flood and Coastal Committee (RFCC)	RFCCs were set up under the Floods and Water Management Act 2010. The committees have a chair appointed by the Minister, members from Lead Local Flood Authorities (allowing for local democratic input) and independent members recruited by the Environment Agency who have specialist skills or backgrounds. RFCCs play an important local role in guiding flood and coastal risk management activities within catchments and along the coast, advising on and approving programmes of work for their areas as well as raising local levies to fund local priority projects and works in partnership with others.
Reservoir	Artificial lake used to store water. Reservoirs may be created in river valleys by the construction of a dam or may be built by excavation in the ground or by conventional construction techniques such as brickwork or cast concrete. Reservoirs greater than 10,000m <sup>3</sup> are governed by the Reservoirs Act.
Residual Risk	The risk which remains after all risk avoidance, reduction and mitigation measures have been implemented.
Return Period	The probability of a flood of a given magnitude occurring within any one year e.g. a 1% (1 in 100) Annual Exceedance Probability (AEP) flood event has a 1% probability of occurring once in any one year.
Riparian Owner	All landowners whose property is adjoining to a body of water have the right to make reasonable use of it and the responsibility to suitably maintain it.

River Basin Management Plans (RBMP)	River Basin Management Plans have been produced by the Environment Agency for the eleven river basin districts in England and Wales and are the central tool setting out the objectives and actions required to achieve the objectives of the Water Framework Directive. RBMPs describe the main issues for each river basin district and state the environmental objectives for the basin, explain the objectives selected to achieve good ecological status and summarise the actions needed to deliver those objectives. A River Basin District is: a river basin, or several river basins, and the river basin's adjacent coastal waters.
Sequential Test	Informed by a SFRA, a planning authority applies the Sequential Test to demonstrate that there are no reasonably available sites in areas with less risk of flooding that would be appropriate to the type of development or land use proposed.
Sewer	<p>A sewer is a pipe which carries and removes either rainwater (surface) or foul water (or a combination of both) from more than one property. A sewer can also be categorised as being a private or public sewer and can carry surface or foul water.</p> <ul style="list-style-type: none"> <li>• A Private Sewer is solely the responsibility of the occupiers/owners of the properties that it serves.</li> <li>• A Public Sewer is a sewer that has been adopted and maintained by a Sewerage Undertaker.</li> </ul>
Sewer flooding	The consequence of sewer systems exceeding their capacity during a rainfall event.
Strategic Flood Risk Assessment (SFRA)	An SFRA is used as a tool by a planning authority to assess flood risk for spatial planning, producing development briefs, setting constraints, informing sustainability appraisals and identifying locations of emergency planning measures and requirements for flood risk assessments. The purpose of a SFRA is to assess and map all forms of flood risk from groundwater, surface water, impounded water bodies, sewer and river sources, taking into account future climate change predictions, to allow planning authorities to use this as an evidence base to locate future development primarily in low flood risk areas. The outputs from an SFRA also assist in the production of sustainable policies for the long-term management of flood risk.
SuDS	Sustainable Drainage Systems. SuDS are drainage systems which are designed to reduce the impact of urbanisation on the hydrology of a river system.
Surface Runoff	Rainwater (including snow and other precipitation) which: is on the surface of the ground (whether or not it is moving); and has not entered a watercourse, draining system or public sewer. Areas that suffer a depth of greater than 0.1m are considered to be at risk of surface water flooding. Flooding that is greater than 0.3m deep is classed as being at risk of deep surface water flooding.

## Surface Water Management Plans (SWMP)

Surface Water Management Plans are produced by local authorities and are described as a framework through which key local partners with a responsibility for surface water and drainage in their area work together to understand the causes of surface water flooding and agree the most cost effective way of managing that risk. The purpose is to make sustainable surface water management decisions that are evidence based, risk based, future proofed and inclusive of stakeholder views. A SWMP should establish a long-term action plan to manage surface water in an area and should influence future capital investment, drainage maintenance, public engagement and understanding, land-use planning, emergency planning and future developments. The following benefits are achieved through undertaking a SWMP study:

- Increased understanding of the causes, probability and consequences of surface water flooding;
- Increased understanding of where surface water flooding will occur which can be used to inform spatial and emergency planning functions;
- A co-ordinated action plan, agreed by all partners and supported by an understanding of the costs and benefits, which partners will use to work together to identify measures to mitigate surface water flooding;
- Identifying opportunities where SuDS can play a more significant role in managing surface water flood risk;
- Increased awareness of the duties and responsibilities for managing flood risk of different partners and stakeholders;
- Improved public engagement and understanding of surface water flooding;
- Significant contribution made towards meeting the requirements of the Flood Risk Regulations (2009) and Flood and Water Management Act (2010).

## The Water Framework Directive

The Water Framework Directive was introduced in December 2000 and became UK law in December 2003. The directive focuses on improving the ecology of our water ecosystems and aims to protect and enhance the quality of surface water, groundwater, estuaries and coastal waters. The Environment Agency are the lead authority responsible for the delivery of these targets, but must work closely with lead local flood authorities, such as the County Council, to ensure that targets are achieved.

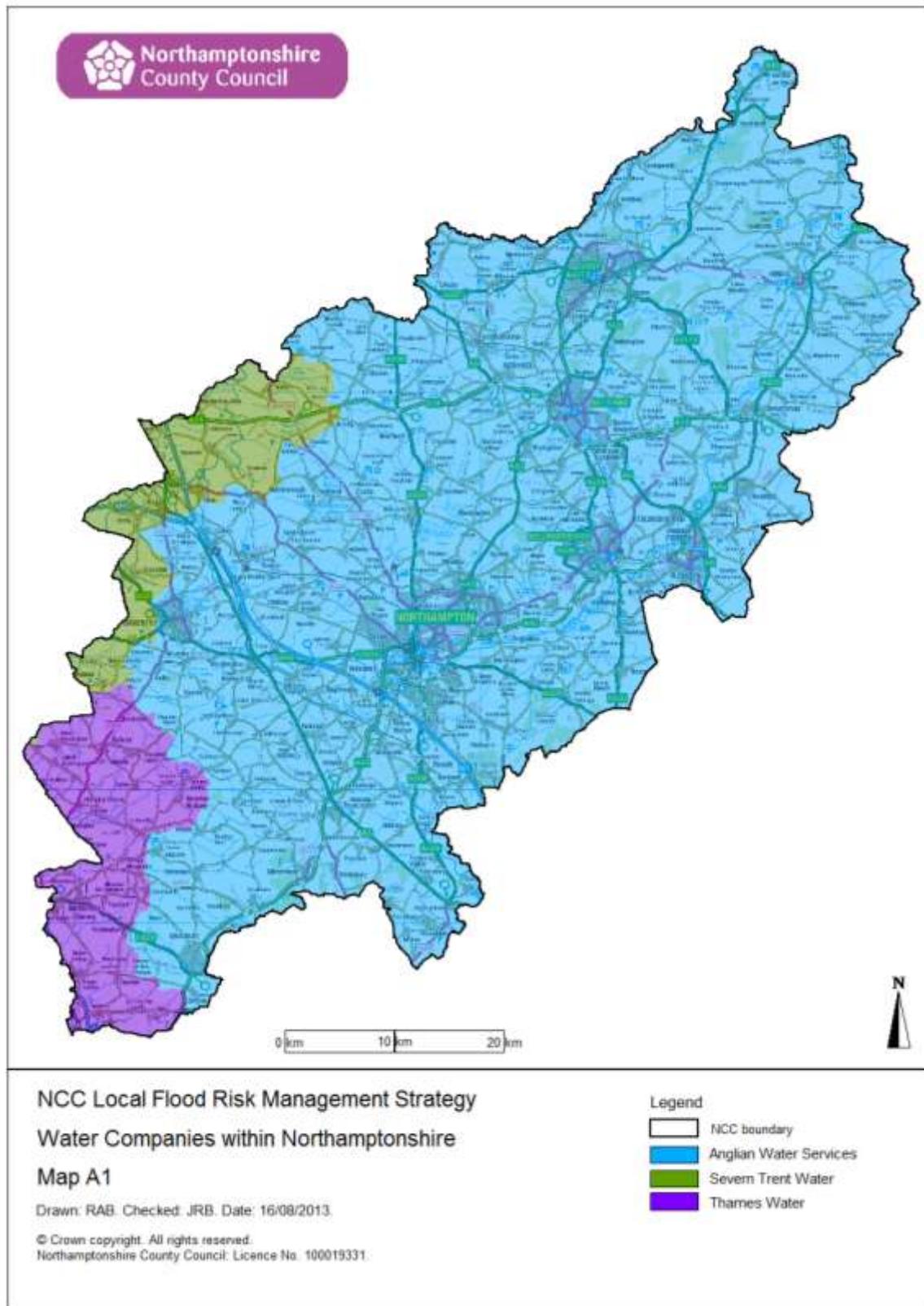
## **APPENDIX 2: ABBREVIATIONS**

<b>Abbreviation</b>	<b>Meaning / Definition</b>
AEP	Annual Exceedance Probability
ABI	Association of British Insurers
AStGWF	Area Susceptible to Ground Water Flooding
AStSWF	Area Susceptible to Surface Water Flooding
AWS	Anglian Water Services
BAP	Biodiversity Action Plan
BCW	Borough Council of Wellingborough
BGS	British Geological Society
CBC	Corby Borough Council
CFMP	Catchment Flood Management Plan
CLG	(The Department for) Communities and Local Government
DDC	Daventry District Council
Defra	The Department for Food and Rural Affairs
DG5	Water companies record of Sewer Flooding
EA	Environment Agency
ENC	East Northamptonshire Council
FCERM	Flood and Coastal Erosion Risk Management
FDGiA	Flood Defence Grant in Aid
FEP	Flood Evacuation Plan
FIMP	Flood Incident Management Plan
FRM	Flood Risk Management
F&WMA	Flood and Water Management Act 2010
ENC	East Northamptonshire Council
FMfSW	Flood Map for Surface Water
FRA	Flood Risk Assessment
FSR	Flood Storage Reservoir
FWD	Flood Warnings Direct
GHG	Greenhouse Gas
GIS	Geographical Information System
IDB	Internal Drainage Board
JCS	Joint Core Strategy
KBC	Kettering Borough Council
LDDs	Local Development Documents
LDF	Local Development Framework
LGA	Local Government Association
LGIU	Local Government Information Unit
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LRF	Local Resilience Forum
MAFP	Multi Agency Flood Plan
MCA	Multiple Criteria Analysis
MGWSP	Highways contractors May Gurney and WSP
MWDF	Minerals and Waste Development Framework
NBC	Northampton Borough Council
NCC	Northamptonshire County Council
NCFRS	Northamptonshire Community Flood Risk Summary
NFCDD	National Flood and Coastal Defence Database
NIA	Nature Improvement Area
NN JPU	North Northamptonshire Joint Planning Unit
NPPF	National Planning Policy Framework

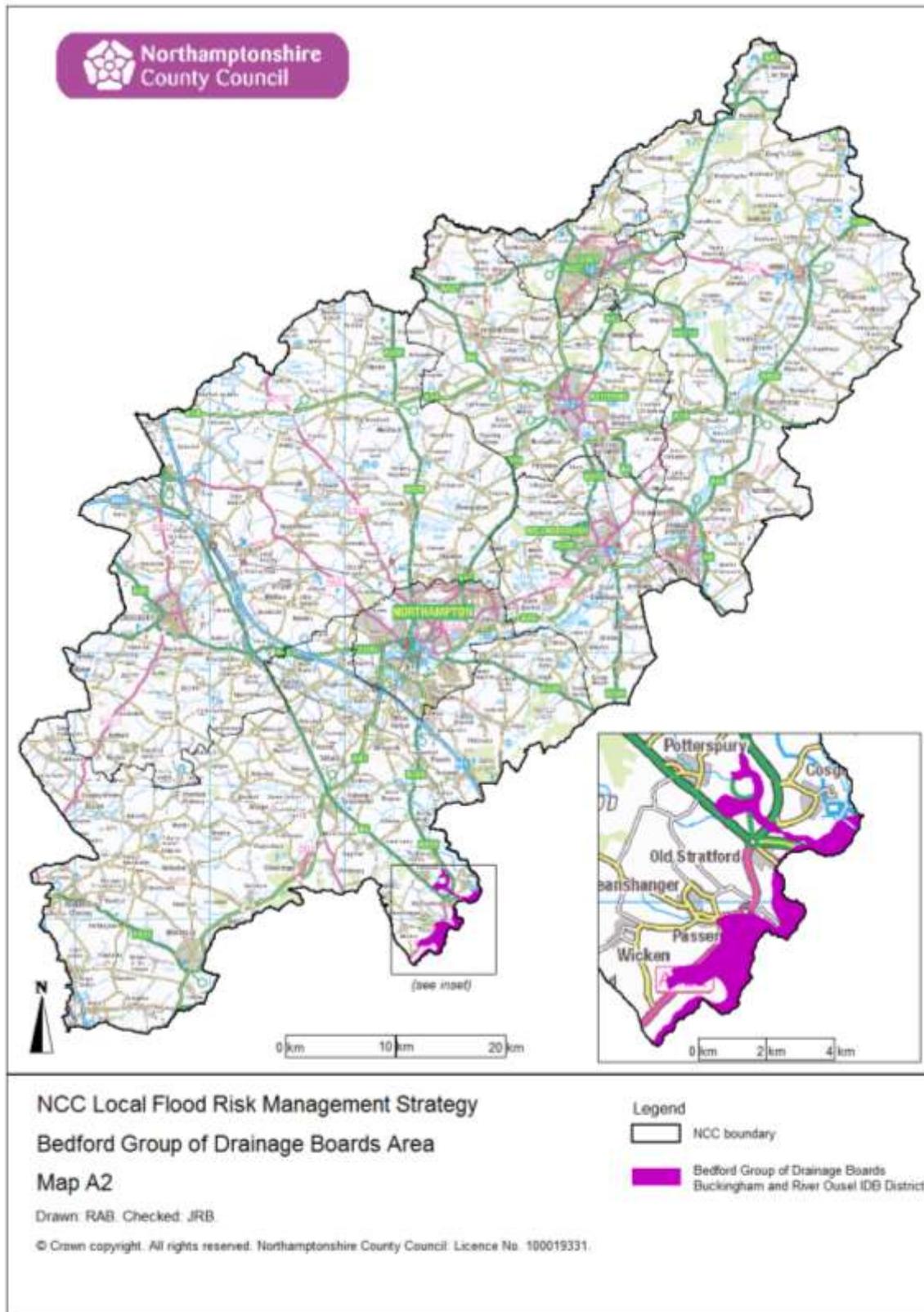
<b>Abbreviation</b>	<b>Meaning / Definition</b>
NRD	National Receptor Dataset
PFRA	Preliminary Flood Risk Assessment
PPG	Planning Policy Guidance Note
PPS 1	Planning Policy Statement 1: Delivering Sustainable Development
PPS 3	Planning Policy Statement 3: Housing
PPS 25	Planning Policy Statement 25: Development and Flood Risk now superseded by the National Planning Policy Framework. The Practice Guide remains extant.
RBD	River Basin District
RBMP	River Basin Management Plan
RFCC	Regional Flood and Coastal Committee
RFDC	Regional Flood Defence Committee
RFRA	Regional Flood Risk Assessment
RSS	Regional Spatial Strategy
SAB	SuDS Approval Body
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SMD	Soil Moisture Deficit
SNC	South Northamptonshire Council
SoP	Standard of Protection
SuDS	Sustainable Drainage Systems
SUE	Sustainable Urban Extension
SWMP	Surface Water Management Plan
WFD	Water Framework Directive
WCS	Water Cycle Study or Strategy

## ***APPENDIX 3: MAPS***

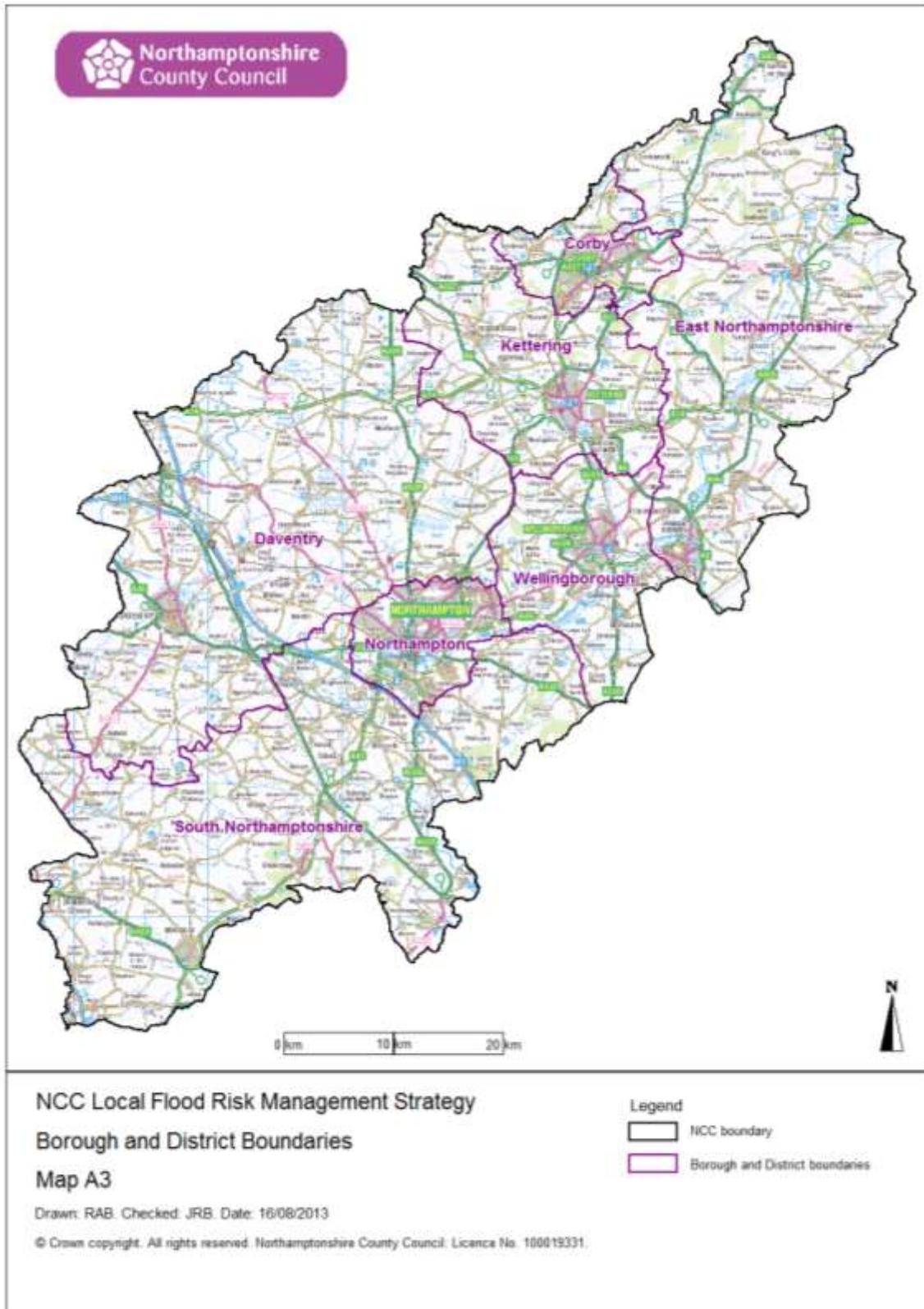
## Map A 1: Water Company Boundaries



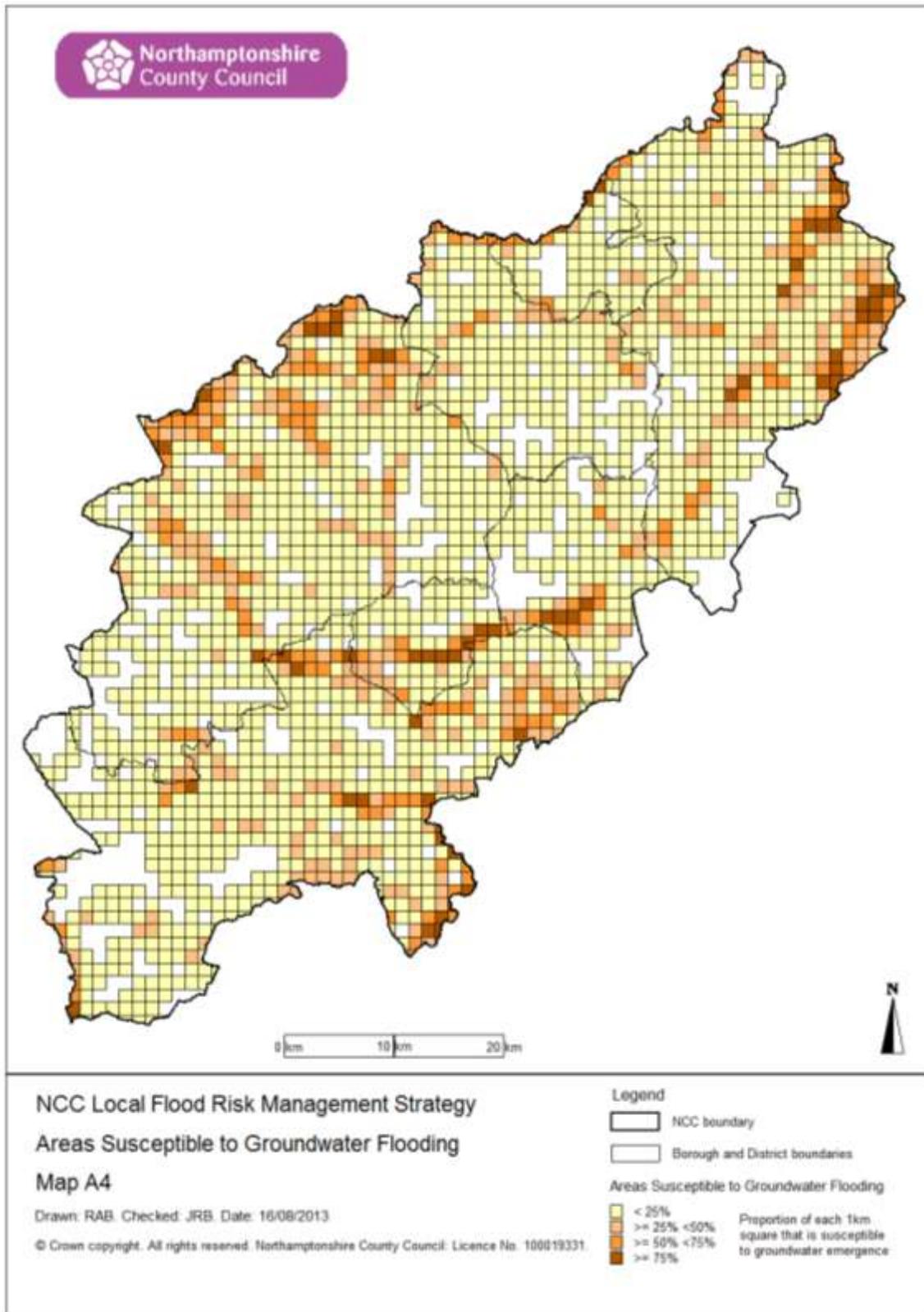
Map A 2: IDB Boundary



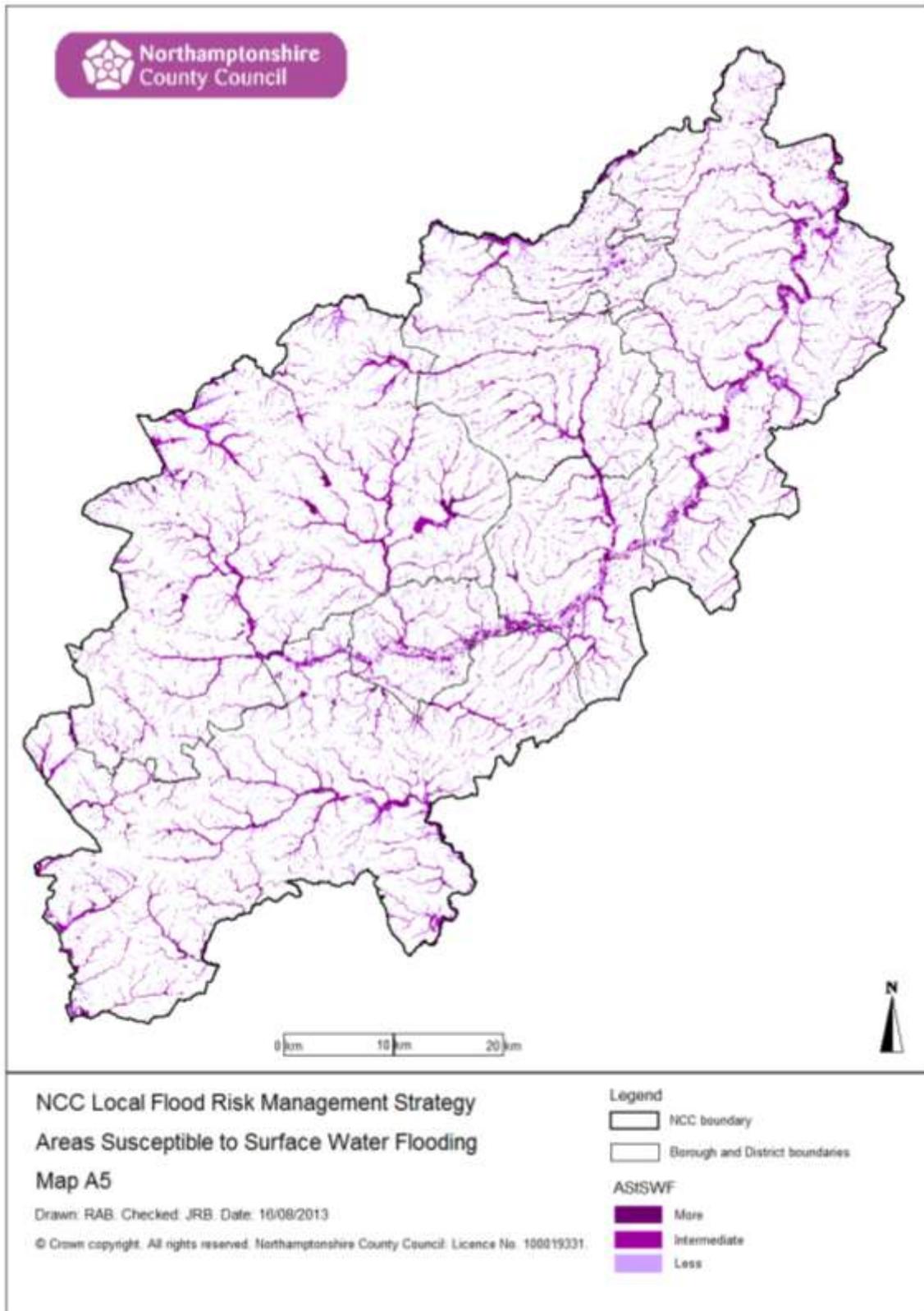
Map A 3: District and Borough Boundaries



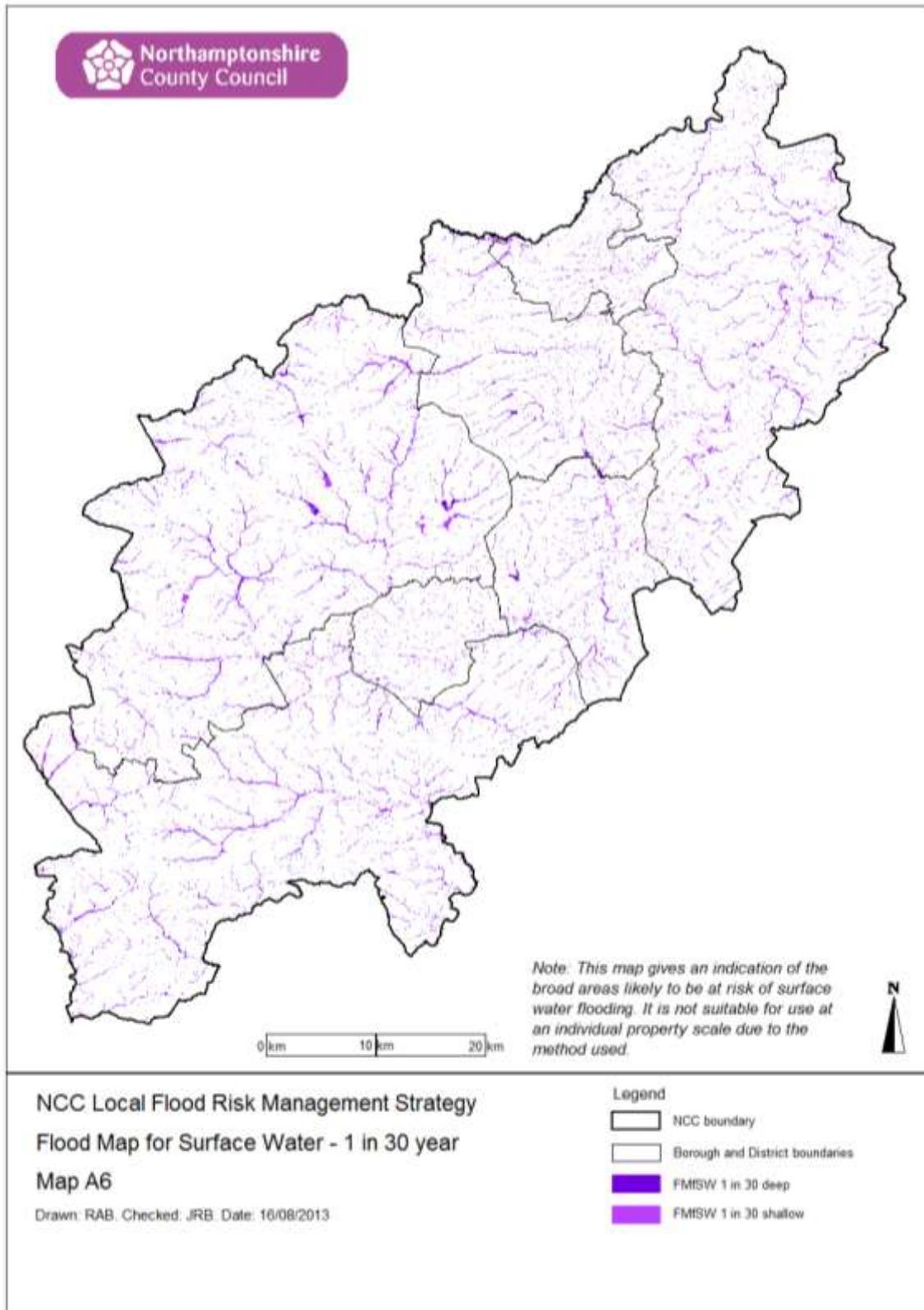
Map A 4: Areas Susceptible to Ground Water Flooding



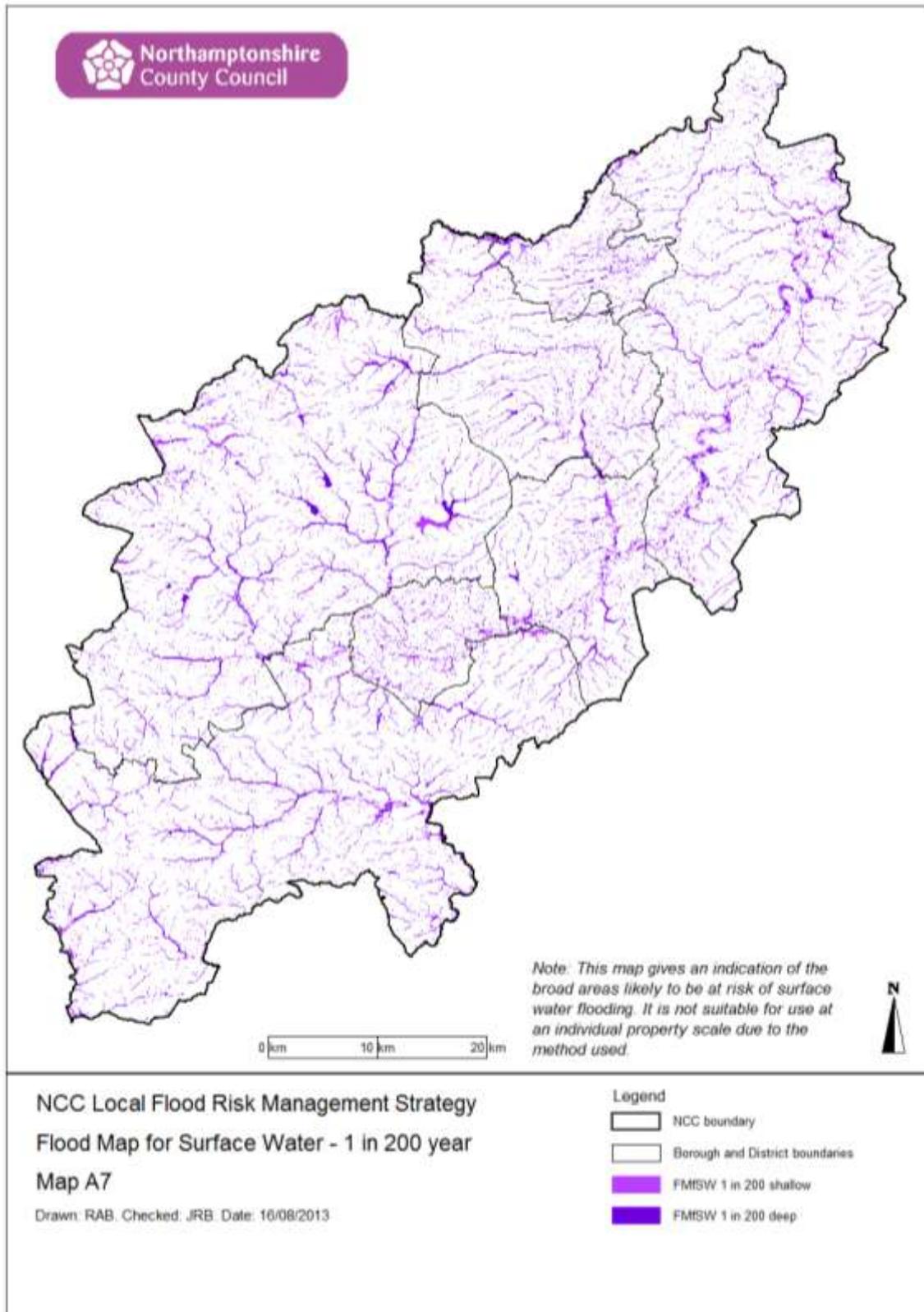
Map A 5: Areas Susceptible to Surface Water Flooding



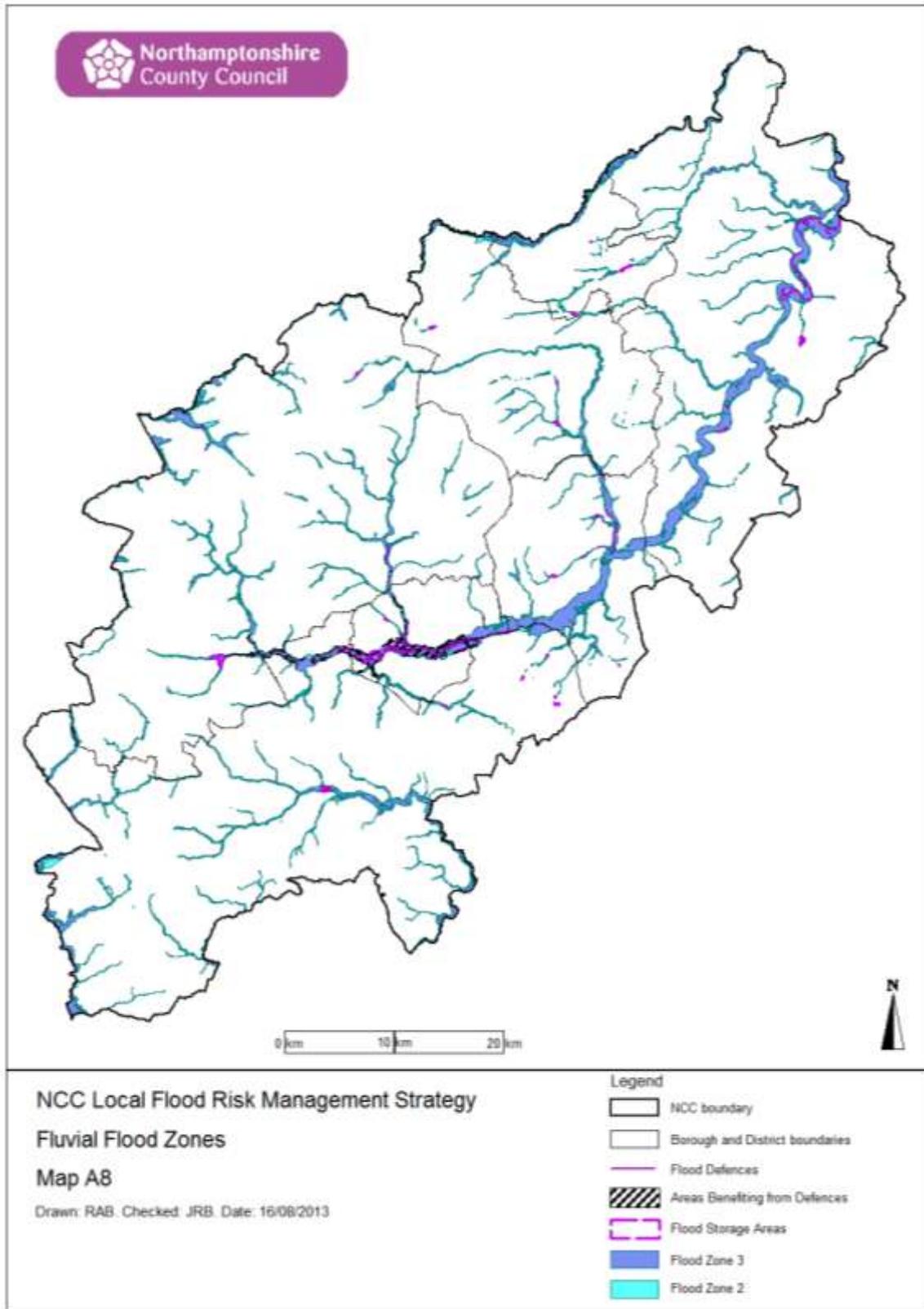
Map A 6: Flood Map for Surface Water – 1 in 30



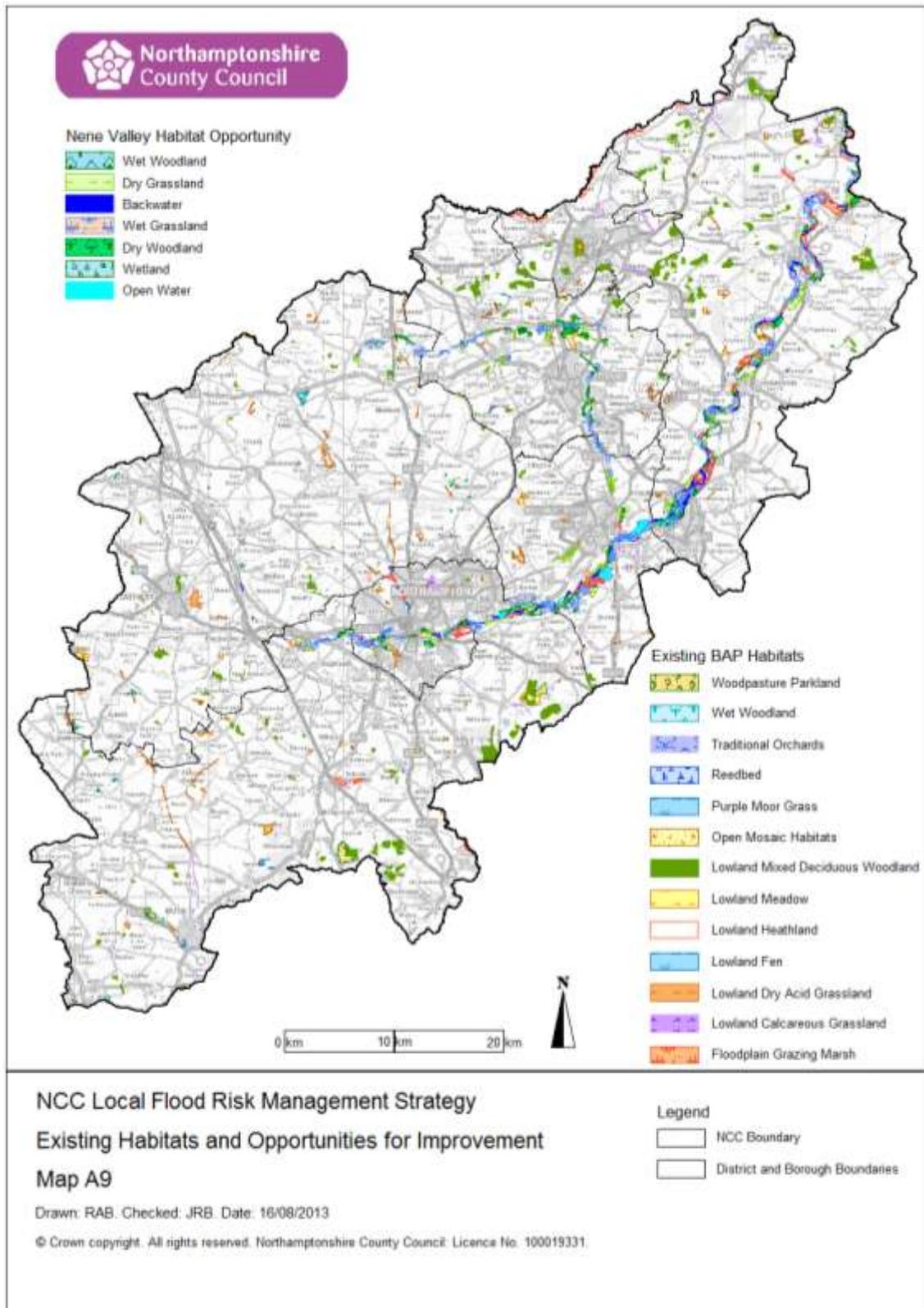
Map A 7: Flood Map for Surface Water – 1 in 200



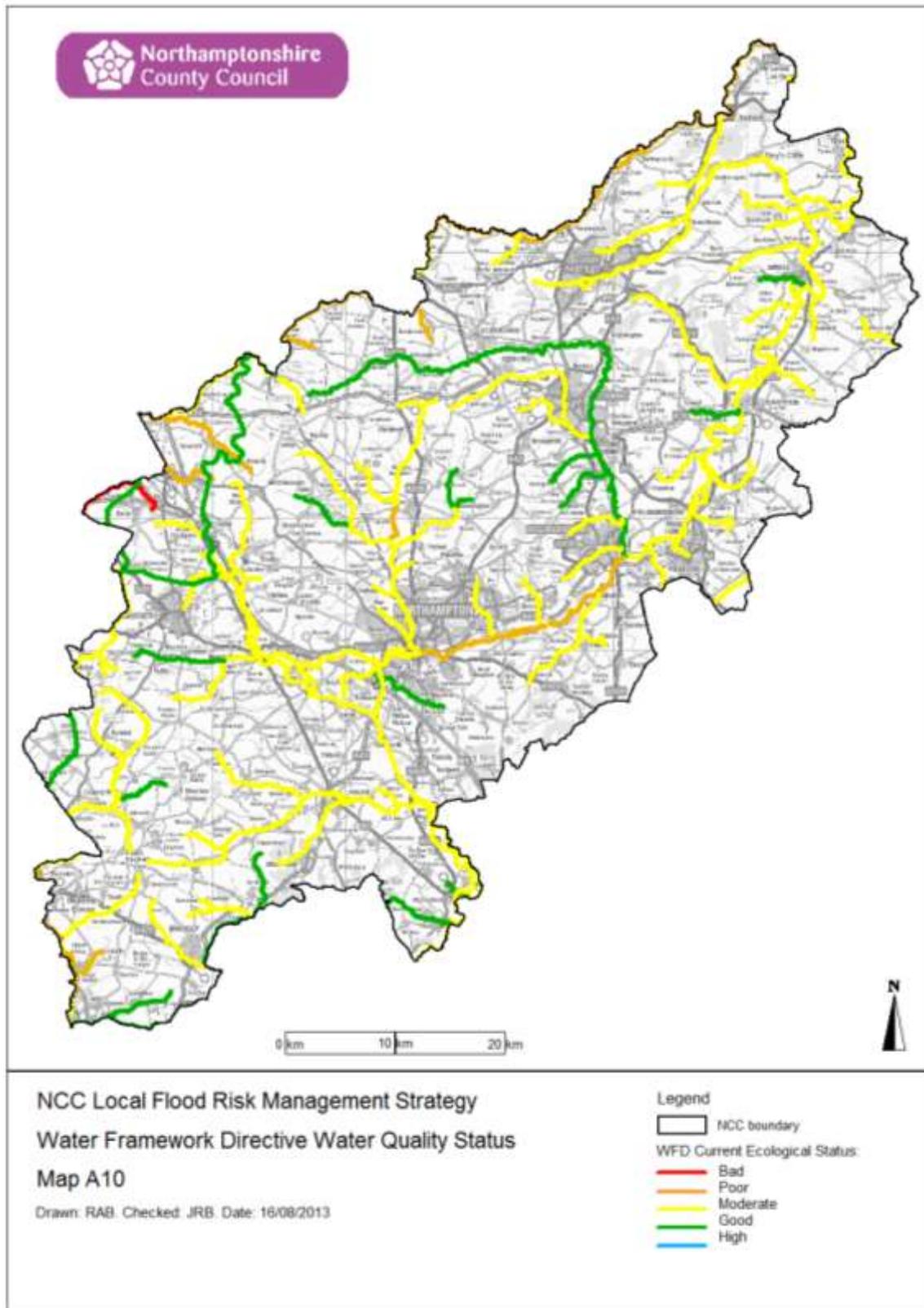
Map A 8: Fluvial Flood Zones and Defences



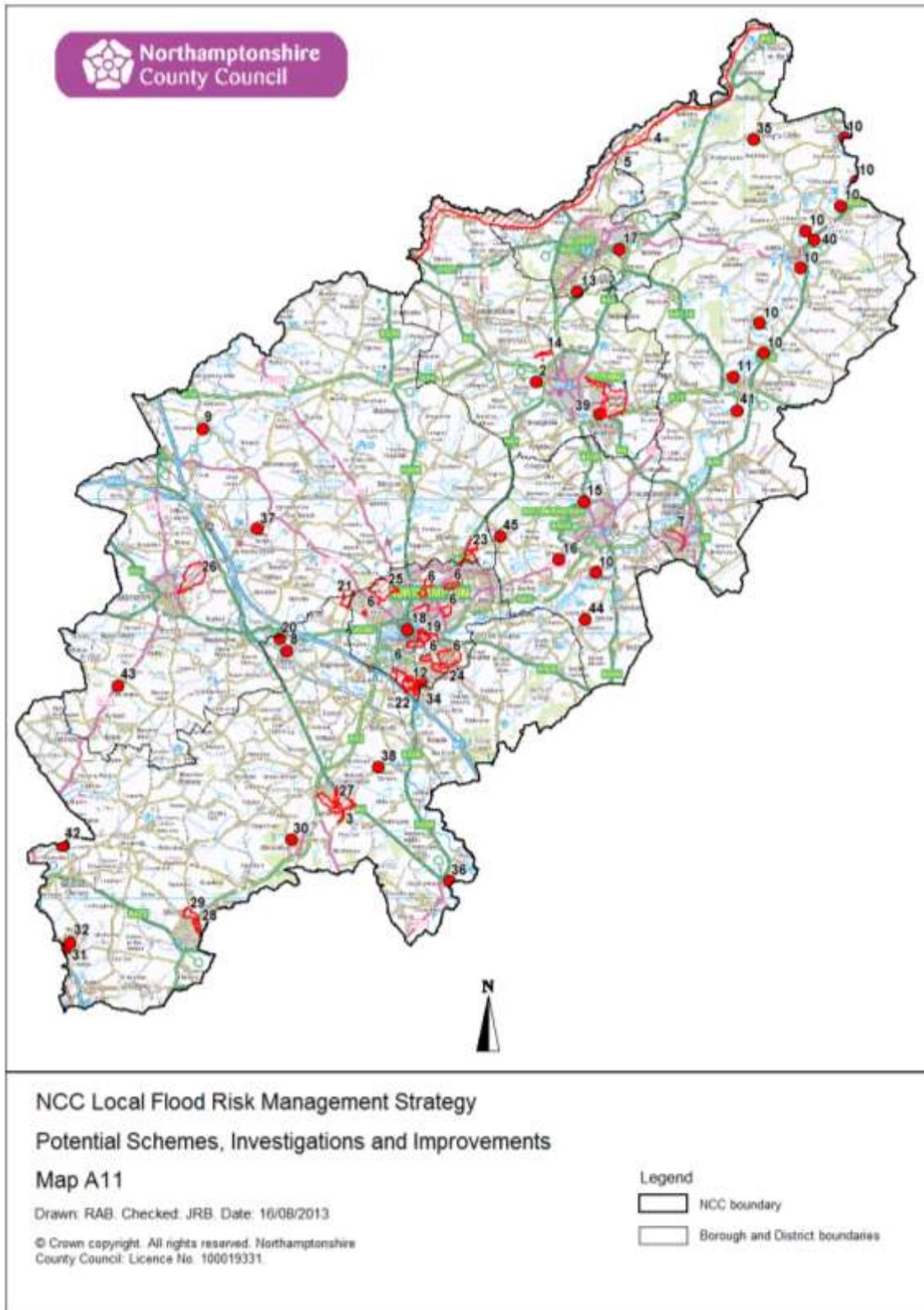
Map A 9: Existing BAP Habitats and Opportunities for Improvement



Map A 10: Water Framework Directive Water Quality



Map A 11: Identified Potential Schemes, Investigations and Improvements



## **APPENDIX 4: FLOOD AND WATER RELATED STUDIES AND STRATEGIES**

### **Northamptonshire-wide Related Work**

- Northamptonshire Multi-Agency Flood Plan – procedures relating to support the multi-agency response to and recover from flooding. August 2011.
- Northamptonshire Community Flood Risk Summary – A Summary Analysis of relative flood risk across Northamptonshire in support of the Multi-Agency Flood Plan. September 2011.
- Nene Flood Storage Study – reviews opportunities for additional flood storage areas within the River Nene catchment. August 2011.

### **North Northamptonshire Related Work**

- Corby Borough Council Strategic Flood Risk Assessment. Stage 1 – Data Collection and Evaluation. Final Report March 2004.  
<http://www.corby.gov.uk/EnvironmentAndPlanning/Planning/Documents/Strategic%20Flood%20Risk%20Assessment%20Stage%2001Report.pdf>
- Corby Borough Council Strategic Flood Risk Assessment. Stage 2 – Final Report. August 2006.  
<http://www.corby.gov.uk/EnvironmentAndPlanning/Planning/Documents/SRFA%20Stage%202%20Final%20Report%20aug%202006.pdf>
- Corby Borough Council Strategic Flood Risk Assessment. Stage 2 – Study Update 2011.
- Corby Water Cycle Strategy. Phase 1 – Outline Strategy. Technical Report. September 2005.  
<http://www.corby.gov.uk/EnvironmentAndPlanning/Planning/Documents/Water%20Cycle%20Strategy.pdf>
- Corby Water Cycle Strategy. Phase 2 – Detailed Strategy. Technical Report. November 2006.  
<http://www.corby.gov.uk/EnvironmentAndPlanning/Planning/Documents/Phase%202%20Technical%20Report%20171106.pdf>
- Corby Water Cycle Strategy Update - Corby Culvert Options Assessment. May 2012
- Corby Flood Risk Management Plan
- East Northamptonshire Council Level 1 Strategic Flood Risk Assessment – Review and Update. August 2011.  
[http://www.east-northamptonshire.gov.uk/downloads/SFRA\\_2011\\_Main\\_Report.pdf](http://www.east-northamptonshire.gov.uk/downloads/SFRA_2011_Main_Report.pdf)
- East Northamptonshire Surface Water Management Plan – expected completion 2015.
- Kettering and Wellingborough Level 1 Strategic Flood Risk Assessment Update. Final Report. February 2011  
[http://www.wellingborough.gov.uk/download/5013/sfra\\_update\\_main\\_body](http://www.wellingborough.gov.uk/download/5013/sfra_update_main_body)
- Wellingborough Surface Water Management Plan – expected completion 2015.
- Kettering Borough Council Strategic Flood Risk Assessment Level 2. Final Report. April 2010.  
[http://www.kettering.gov.uk/downloads/Kettering\\_Town\\_Centre\\_Level\\_2\\_Strategic\\_Flood\\_Risk\\_Assessment.pdf](http://www.kettering.gov.uk/downloads/Kettering_Town_Centre_Level_2_Strategic_Flood_Risk_Assessment.pdf)
- Kettering Town Surface Water Management Plan – expected completion 2015.
- North Northamptonshire Development Study – Outline Water Cycle Strategy. Technical Report. January 2007.  
<http://www.nnjpu.org.uk/docs/Technical%20Report%20Final.pdf>
- North Northamptonshire Water Cycle Strategy Group. Wastewater Capacity Study: Interim Findings. September 2007.

- <http://www.nnjpu.org.uk/docs/Interim%20Findings%20-%20Final%20Report.pdf>
- North Northamptonshire Detailed Water Cycle Strategy - 2009  
<http://www.nnjpu.org.uk/docs/NN%20Detailed%20Water%20Cycle%20Strategy.pdf>
- North Northamptonshire Flood Risk Management Study. Final Report. June 2007.  
[http://www.nnjpu.org.uk/docs/North%20Northants%20Final%20FRMS%20Report%20\(TEXT%20ONLY\).pdf](http://www.nnjpu.org.uk/docs/North%20Northants%20Final%20FRMS%20Report%20(TEXT%20ONLY).pdf)
- North Northamptonshire Flood Risk Management Study Update. April 2012  
<http://www.nnjpu.org.uk/>

### **West Northamptonshire Related Work**

- West Northamptonshire Strategic Flood Risk Assessment. Final Level 1 Report – Volume 1. February 2009.  
<http://www.westnorthamptonshirejpu.org/LinkClick.aspx?fileticket=7icY%2f2G%2fvE0%3d&tabid=129>
- West Northamptonshire (Daventry and South Northamptonshire) Level 2 Strategic Flood Risk Assessment. “Living Document”. June 2009.  
<http://www.westnorthamptonshirejpu.org/LinkClick.aspx?fileticket=O4KicvSKTLY%3d&tabid=130>
- Northampton Level 2 Strategic Flood Risk Assessment. Living Document. February 2010.  
<http://www.westnorthamptonshirejpu.org/LinkClick.aspx?fileticket=UtZJp7qVkO4%3d&tabid=132>
- West Northamptonshire Development Corporation Water Cycle Strategy. Phase 1. Outline Study May 2009.  
<http://www.wndc.org.uk/wp-content/uploads/2010/06/West-Northants-main-report-v8-with-cover1.pdf>
- West Northamptonshire Water Cycle Study. Pre-submission Joint Core Strategy. Detailed WCS Final Report. August 2011.  
<http://www.westnorthamptonshirejpu.org/connect.ti/website/view?objectId=2759888>
- Northampton Surface Water Management Plan – Expected completion end 2013  
<http://www.northamptonshire.gov.uk/en/councilservices/Environ/flood/Pages/default.aspx>
- Northampton Central Area Action Plan Drainage Assessment – Final August 2012  
[http://www.northampton.gov.uk/download/downloads/id/5207/fl003\\_3a\\_northampton\\_central\\_area\\_drainage\\_assessment\\_final\\_report\\_v3\\_3\\_pdf](http://www.northampton.gov.uk/download/downloads/id/5207/fl003_3a_northampton_central_area_drainage_assessment_final_report_v3_3_pdf)
- South Northamptonshire Surface Water Management Plan – expected completion 2015.
- Daventry Surface Water Management Plan – expected completion 2015.

### **Catchment Flood Management Plans**

- River Nene Catchment Flood Management Plan (December 2009)  
<http://publications.environment-agency.gov.uk/PDF/GEAN0909BPCD-E-E.pdf>
- Thames Catchment Flood Management Plan (December 2009)  
<http://publications.environment-agency.gov.uk/PDF/GETH1209BQYL-E-E.pdf>
- Great Ouse Catchment Flood Management Plan Summary Report – (January 2011)  
<http://publications.environment-agency.gov.uk/PDF/GEAN0111BTJL-E-E.pdf>
- River Welland Catchment Flood Management Plan Summary Report (December 2009)  
<http://publications.environment-agency.gov.uk/PDF/GEAN1209BRIZ-E-E.pdf>
- Severn Catchment Flood Management Plan Summary Report (December 2009)  
<http://publications.environment-agency.gov.uk/PDF/GEMI0909BQYM-B-E.pdf>

### **River Basin Management Plans**

- River Basin Management Plan: Anglian River Basin District (December 2009)  
<http://publications.environment-agency.gov.uk/PDF/GEAN0910BSPM-E-E.pdf>
- River Basin Management Plan: Severn River Basin District (December 2009)  
<http://publications.environment-agency.gov.uk/PDF/GEMI0910BSSK-E-E.pdf>
- River Basin Management Plan: Thames River Basin District (December 2009)  
<http://publications.environment-agency.gov.uk/PDF/GETH0910BSWA-E-E.pdf>

### **National**

- National Flood and Coastal Erosion Management Strategy for England, Environment Agency (September 2011)  
<http://www.environment-agency.gov.uk/research/policy/130073.aspx>

## APPENDIX 5: PRIORITISATION ASSESSMENT

A total of 10 flooding scenarios have been assessed, to determine those wards most susceptible to flooding, as described in [Section 6](#). The results of the three key scenarios for Northamptonshire have been summarised in the main report. This appendix includes the full results for all 10 scenarios, in maps and tables. The tabulated results are provided by ward in priority order from high to low.

### Areas Susceptible to Groundwater Flooding greater than 75%

Map A 12: Priority Assessment for Areas Susceptible to Groundwater Flooding >75%

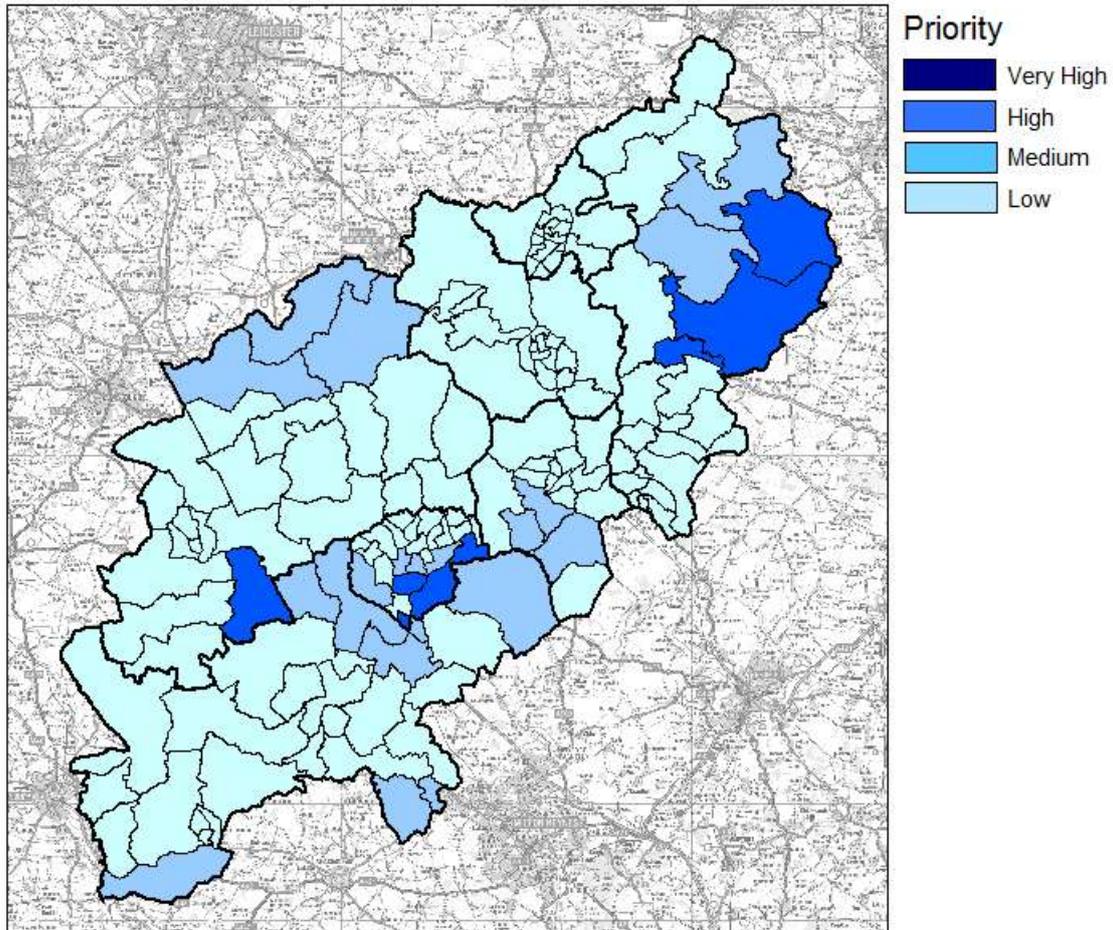


Table A 1 Results of Priority Assessment for Areas Susceptible to Groundwater Flooding >75%

Priority	Ward Name	District/ Borough
1	Barnwell Ward	East Northants
2	Billing Ward	Northampton
	Delapre Ward	Northampton
	Nene Valley Ward	Northampton
5	Lower Nene Ward	East Northants
	Thrapston Lakes Ward	East Northants
	Weedon Ward	Daventry
8	Welford Ward	Daventry
8	Yelvertoft Ward	Daventry
10	Earls Barton Ward	Wellingborough
	Heyfords and Bugbrooke Ward	South Northants
	St. Crispin Ward	Northampton
13	Castle Ward	Northampton
	Harpole and Grange Ward	South Northants
	Oundle Ward	East Northants
	Prebendal Ward	East Northants

Priority	Ward Name	District/ Borough
13	Wollaston Ward	Wellingborough
18	Deanshanger Ward	South Northants
	Little Brook Ward	South Northants
	Old Stratford Ward	South Northants
21	Clipston Ward	Daventry
	West Hunsbury Ward	Northampton
	Weston Ward	Northampton
24	Blisworth and Roade Ward	South Northants
	Brafield and Yardley Ward	South Northants
	Grange Park Ward	South Northants
	Great Doddington and Wilby Ward	Wellingborough
28	Cosgrove and Grafton Ward	South Northants
	Hackleton Ward	South Northants
	Tove Ward	South Northants
	Washington Ward	South Northants
	Weldon and Gretton Ward	Corby
33	Brixworth Ward	Daventry
	Rural West Ward	Corby
	Salcey Ward	South Northants
36	Flore Ward	Daventry
	Kings Sutton Ward	South Northants
39	Towcester Mill Ward	South Northants
	Abbey North Ward	Daventry
	Abbey South Ward	Daventry
	Abington Ward	Northampton
	All Saints Ward	Kettering
	Astwell Ward	South Northants
	Avondale Grange Ward	Kettering
	Badby Ward	Daventry
	Barby and Kilsby Ward	Daventry
	Barton Ward	Kettering
	Beanfield Ward	Corby
	Blakesley and Cote Ward	South Northants
	Boughton and Pitsford Ward	Daventry
	Boughton Green Ward	Northampton
	Brackley East Ward	South Northants
	Brackley South Ward	South Northants
	Brackley West Ward	South Northants

Priority	Ward Name	District/ Borough
39	Brambleside Ward	Kettering
	Brampton Ward	Daventry
	Braunston Ward	Daventry
	Brickhill Ward	Wellingborough
	Burton Latimer Ward	Kettering
	Byfield Ward	Daventry
	Castle Ward	Wellingborough
	Central Ward	Corby
	Crick Ward	Daventry
	Croyland Ward	Wellingborough
	Danesholme Ward	Corby
	Danvers and Wardoun Ward	South Northants
	Desborough Loatland Ward	Kettering
	Desborough St. Giles Ward	Kettering
	Drayton Ward	Daventry
	East Hunsbury Ward	Northampton
	East Ward	Corby
	Eastfield Ward	Northampton
	Ecton Brook Ward	Northampton
	Exeter Ward	Corby
	Finedon Ward	Wellingborough
	Fineshade Ward	East Northants
	Great Oakley Ward	Corby
	Headlands Ward	Northampton
	Hemmingwell Ward	Wellingborough
	Higham Ferrers Chichele Ward	East Northants
	Higham Ferrers Lancaster Ward	East Northants
	Hill Ward	Daventry
	Irchester Ward	Wellingborough
	Irthlingborough John Pyel Ward	East Northants
	Irthlingborough Waterloo Ward	East Northants
	Ise Lodge Ward	Kettering
	King's Forest Ward	East Northants
	Kingsley Ward	Northampton
	Kingsthorpe Ward	Northampton
	Kingswood Ward	Corby
	Kingthorn Ward	South Northants
	Lodge Park Ward	Corby

Priority	Ward Name	District/ Borough
39	Long Buckby Ward	Daventry
	Lumbertubs Ward	Northampton
	Lyveden Ward	East Northants
	Middleton Cheney Ward	South Northants
	Moulton Ward	Daventry
	New Duston Ward	Northampton
	North Ward	Wellingborough
	Northfield Ward	Kettering
	Oakley Vale Ward	Corby
	Old Duston Ward	Northampton
	Parklands Ward	Northampton
	Pipers Hill Ward	Kettering
	Queen Eleanor and Buccleuch Ward	Kettering
	Queensway Ward	Wellingborough
	Raunds Saxon Ward	East Northants
	Raunds Windmill Ward	East Northants
	Ravensthorpe Ward	Daventry
	Redwell East Ward	Wellingborough
	Redwell West Ward	Wellingborough
	Rothwell Ward	Kettering
	Rowlett Ward	Corby
	Rushden Bates Ward	East Northants
	Rushden Hayden Ward	East Northants
	Rushden Pemberton Ward	East Northants
	Rushden Sartoris Ward	East Northants
	Rushden Spencer Ward	East Northants

Priority	Ward Name	District/ Borough
39	Shire Lodge Ward	Corby
	Silverstone Ward	South Northants
	Slade Ward	Kettering
	South Ward	Wellingborough
	Spencer Ward	Northampton
	Spratton Ward	Daventry
	St. David Ward	Northampton
	St. James Ward	Northampton
	St. Michael's and Wicksteed Ward	Kettering
	St. Peter's Ward	Kettering
	Stanion and Corby Village Ward	Corby
	Stanwick Ward	East Northants
	Steane Ward	South Northants
	Swanspool Ward	Wellingborough
	Thorplands Ward	Northampton
	Thrapston Market Ward	East Northants
	Towcester Brook Ward	South Northants
	Tower Hill Ward	Corby
	Walgrave Ward	Daventry
	Welland Ward	Kettering
	West Haddon and Guilsborough Ward	Daventry
	West Ward	Wellingborough
	Whittlewood Ward	South Northants
	William Knibb Ward	Kettering
	Woodford Ward	East Northants
	Woodford Ward	Daventry

## Areas Susceptible to Surface Water Flooding (intermediate)

Map A 13: Priority Assessment for Areas Susceptible to Surface Water Flooding (intermediate)

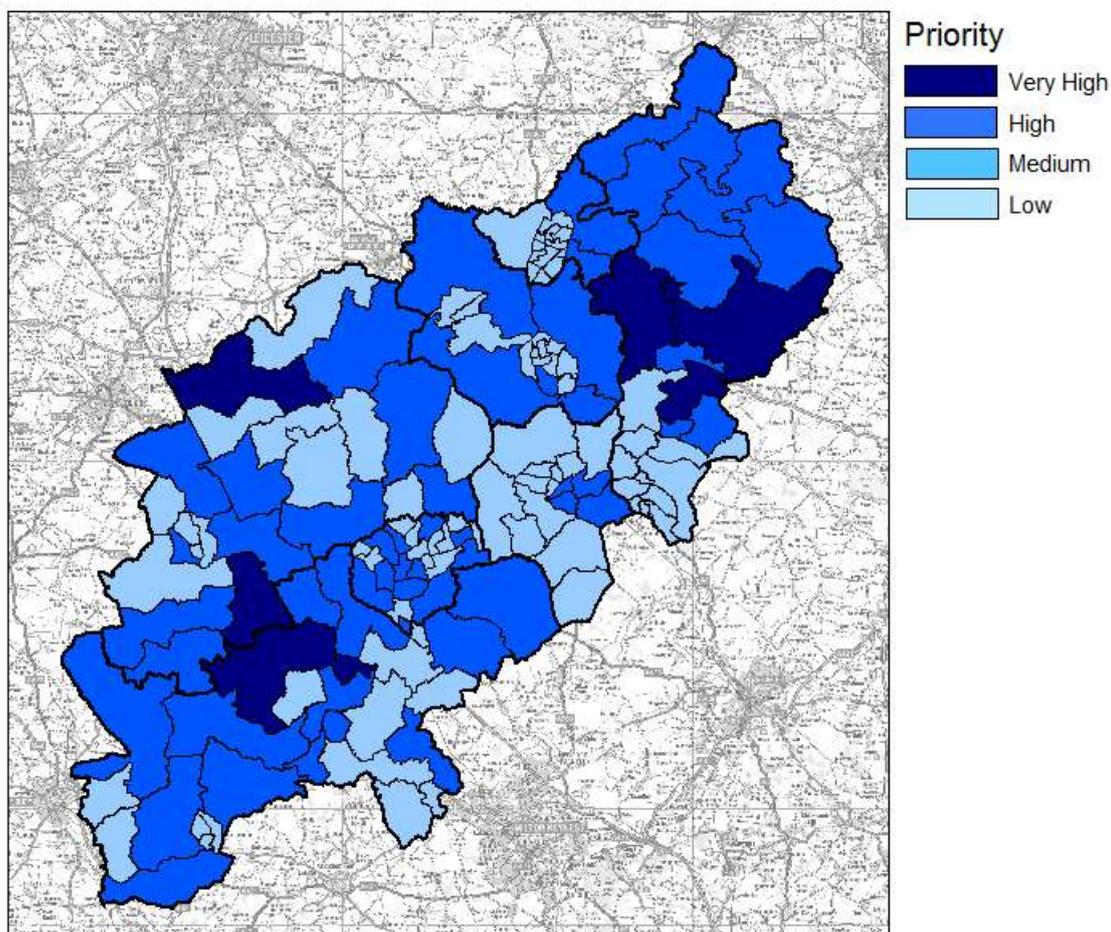


Table A 2 Results of Priority Assessment for Areas Susceptible to Surface Water Flooding (intermediate)

Priority	Ward Name	District/ Borough
1	Lyveden Ward	East Northants
2	Thrapston Market Ward	East Northants
3	Yelvertoft Ward	Daventry
4	Barnwell Ward	East Northants
	Blakesley and Cote Ward	South Northants
	Weedon Ward	Daventry
7	Brafield and Yardley Ward	South Northants
	Harpole and Grange Ward	South Northants
	Lower Nene Ward	East Northants
	Parklands Ward	Northampton
	Queen Eleanor and Buccleuch Ward	Kettering
13	Weldon and Gretton Ward	Corby
	Nene Valley Ward	Northampton
13	Silverstone Ward	South Northants
	Welland Ward	Kettering
16	Burton Latimer Ward	Kettering
	Castle Ward	Northampton
	Irchester Ward	Wellingborough
	Little Brook Ward	South Northants
	St. Michael's and Wicksteed Ward	Kettering
22	Towcester Mill Ward	South Northants
	Billing Ward	Northampton
	Brixworth Ward	Daventry
	Danvers and Wardoun Ward	South Northants
	Delapre Ward	Northampton
	Fineshade Ward	East Northants

Priority	Ward Name	District/ Borough
22	Flore Ward	Daventry
	King's Forest Ward	East Northants
	Long Buckby Ward	Daventry
	Moulton Ward	Daventry
	Oundle Ward	East Northants
	Prebendal Ward	East Northants
	Raunds Saxon Ward	East Northants
	St. James Ward	Northampton
Washington Ward	South Northants	
36	Barby and Kilsby Ward	Daventry
	Brampton Ward	Daventry
	Byfield Ward	Daventry
	Clipston Ward	Daventry
	Heyfords and Bugbrooke Ward	South Northants
	Slade Ward	Kettering
	St. Crispin Ward	Northampton
	Stanion and Corby Village Ward	Corby
	Steane Ward	South Northants
	Thrapston Lakes Ward	East Northants
West Hunsbury Ward	Northampton	
Woodford Ward	Daventry	
48	Astell Ward	South Northants
	Castle Ward	Wellingborough
	Cosgrove and Grafton Ward	South Northants
	Croyland Ward	Wellingborough
	Drayton Ward	Daventry
	Hackleton Ward	South Northants
	Kingsthorpe Ward	Northampton
	Lumbertubs Ward	Northampton
	Raunds Windmill Ward	East Northants
	Spencer Ward	Northampton
	Swanspool Ward	Wellingborough
	Towcester Brook Ward	South Northants
60	Blisworth and Roade Ward	South Northants
	Crick Ward	Daventry
	Earls Barton Ward	Wellingborough
	Finedon Ward	Wellingborough
	Great Doddington and Wilby Ward	Wellingborough

Priority	Ward Name	District/ Borough
60	Higham Ferrers Lancaster Ward	East Northants
	Irthlingborough John Pyel Ward	East Northants
	Irthlingborough Waterloo Ward	East Northants
	Kingsley Ward	Northampton
	Kingswood Ward	Corby
	Queensway Ward	Wellingborough
	Rothwell Ward	Kettering
	Rural West Ward	Corby
	Rushden Spencer Ward	East Northants
	Welford Ward	Daventry
	West Ward	Wellingborough
	Weston Ward	Northampton
	Wollaston Ward	Wellingborough
	Woodford Ward	East Northants
79	Badby Ward	Daventry
	Boughton and Pitsford Ward	Daventry
	Brackley East Ward	South Northants
	Danesholme Ward	Corby
	Deanshanger Ward	South Northants
	Eastfield Ward	Northampton
	Hemmingwell Ward	Wellingborough
	Hill Ward	Daventry
	Kings Sutton Ward	South Northants
	Rowlett Ward	Corby
	Salcey Ward	South Northants
	Shire Lodge Ward	Corby
	St. David Ward	Northampton
	Stanwick Ward	East Northants
Thorplands Ward	Northampton	
Tove Ward	South Northants	
Whittlewood Ward	South Northants	
96	All Saints Ward	Kettering
	Avondale Grange Ward	Kettering
	Barton Ward	Kettering
	Beanfield Ward	Corby
	Boughton Green Ward	Northampton
	Brambleside Ward	Kettering
Braunston Ward	Daventry	

Priority	Ward Name	District/ Borough
96	Central Ward	Corby
	Desborough Loatland Ward	Kettering
	Desborough St. Giles Ward	Kettering
	East Ward	Corby
	Ecton Brook Ward	Northampton
	Exeter Ward	Corby
	Higham Ferrers Chichele Ward	East Northants
	Lodge Park Ward	Corby
	Middleton Cheney Ward	South Northants
	North Ward	Wellingborough
	Northfield Ward	Kettering
	Ravensthorpe Ward	Daventry
	Rushden Bates Ward	East Northants
	Rushden Hayden Ward	East Northants
	Rushden Sartoris Ward	East Northants
	South Ward	Wellingborough
	St. Peter's Ward	Kettering
	Tower Hill Ward	Corby
Walgrave Ward	Daventry	
William Knibb Ward	Kettering	
123	East Hunsbury Ward	Northampton

Priority	Ward Name	District/ Borough
123	Great Oakley Ward	Corby
	Kingthorn Ward	South Northants
	Old Stratford Ward	South Northants
	Pipers Hill Ward	Kettering
	Spratton Ward	Daventry
	Abbey North Ward	Daventry
129	Abbey South Ward	Daventry
	Abington Ward	Northampton
	Brackley South Ward	South Northants
	Brackley West Ward	South Northants
	New Duston Ward	Northampton
	Oakley Vale Ward	Corby
	Old Duston Ward	Northampton
	Redwell West Ward	Wellingborough
	Rushden Pemberton Ward	East Northants
	West Haddon and Guilsborough Ward	Daventry
	Brickhill Ward	Wellingborough
	140	Grange Park Ward
Headlands Ward		Northampton
Ise Lodge Ward		Kettering
Redwell East Ward		Wellingborough

## Areas Susceptible to Surface Water Flooding (more)

Map A 14: Priority Assessment for Areas Susceptible to Surface Water Flooding (more)

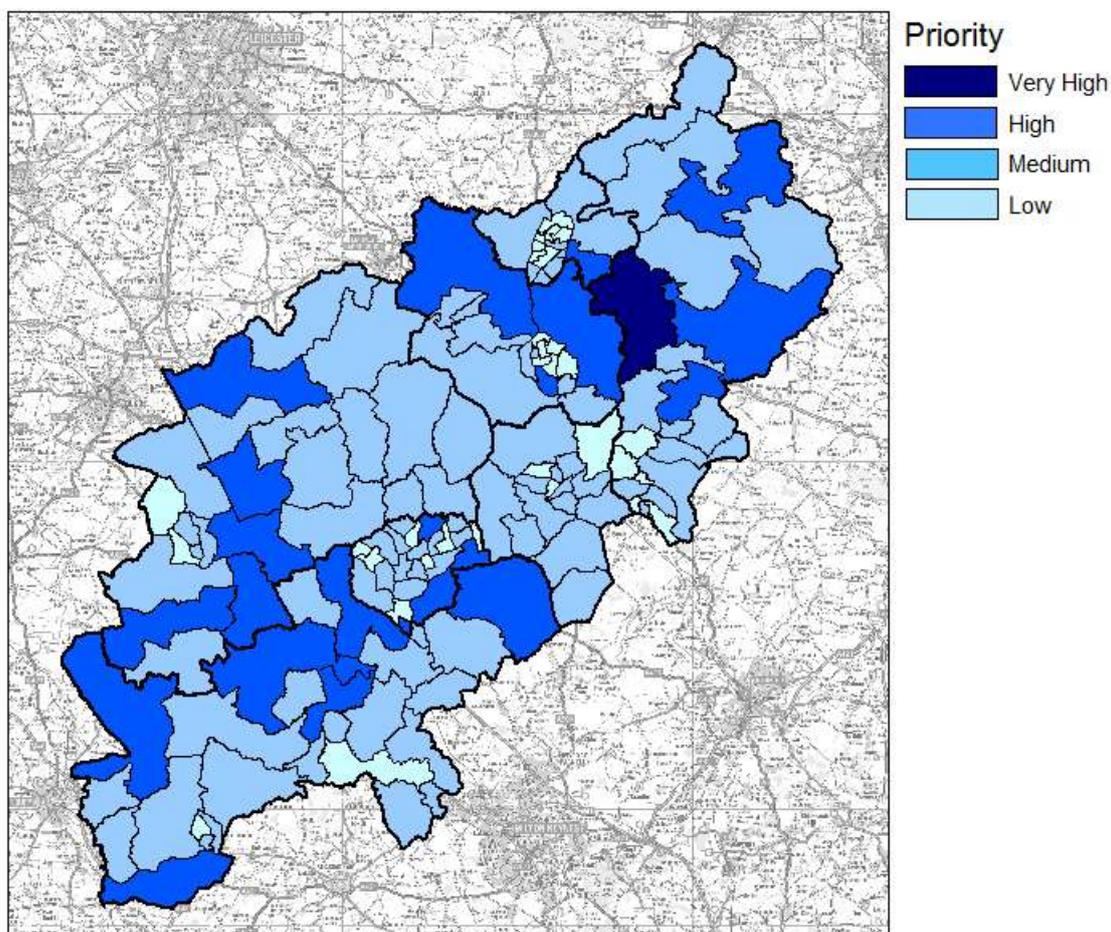


Table A 3 Results of Priority Assessment for Areas Susceptible to Surface Water Flooding (more)

Priority	Ward Name	District/ Borough
1	Lyveden Ward	East Northants
2	Barnwell Ward	East Northants
	Parklands Ward	Northampton
4	Harpole and Grange Ward	South Northants
	St. Michael's and Wicksteed Ward	Kettering
6	Brafield and Yardley Ward	South Northants
	Prebendal Ward	East Northants
	Queen Eleanor and Buccleuch Ward	Kettering
	Thrapston Market Ward	East Northants
	Weedon Ward	Daventry
	Welland Ward	Kettering
12	Billing Ward	Northampton
	Byfield Ward	Daventry
	Danvers and Wardoun Ward	South Northants
	Flore Ward	Daventry
	Nene Valley Ward	Northampton
	Stanion and Corby Village Ward	Corby
	Towcester Mill Ward	South Northants
	Yelvertoft Ward	Daventry
20	Blakesley and Cote Ward	South Northants
	Little Brook Ward	South Northants
	Long Buckby Ward	Daventry

Priority	Ward Name	District/ Borough
23	Astwell Ward	South Northants
	Barby and Kilsby Ward	Daventry
	Castle Ward	Northampton
	Castle Ward	Wellingborough
	Clipston Ward	Daventry
	Cosgrove and Grafton Ward	South Northants
	Great Doddington and Wilby Ward	Wellingborough
	Kingsthorpe Ward	Northampton
	Lower Nene Ward	East Northants
	Lumbertubs Ward	Northampton
	Oundle Ward	East Northants
	Rushden Spencer Ward	East Northants
	Slade Ward	Kettering
	Spencer Ward	Northampton
	St. James Ward	Northampton
	Swanspool Ward	Wellingborough
	Washington Ward	South Northants
	Weldon and Gretton Ward	Corby
Woodford Ward	East Northants	
42	Blisworth and Roade Ward	South Northants
	Brixworth Ward	Daventry
	Burton Latimer Ward	Kettering
	Crick Ward	Daventry
	Danesholme Ward	Corby
	Heyfords and Bugbrooke Ward	South Northants
	Irchester Ward	Wellingborough
	King's Forest Ward	East Northants
	Kingsley Ward	Northampton
	Raunds Saxon Ward	East Northants
St. Crispin Ward	Northampton	
53	Brackley East Ward	South Northants
	Brampton Ward	Daventry
	Croyland Ward	Wellingborough
	Delapre Ward	Northampton
	Exeter Ward	Corby
	Fineshade Ward	East Northants
	Hackleton Ward	South Northants
	Hemmingwell Ward	Wellingborough
Raunds Windmill Ward	East Northants	

Priority	Ward Name	District/ Borough
53	Rushden Hayden Ward	East Northants
	Rushden Sartoris Ward	East Northants
	South Ward	Wellingborough
	St. Peter's Ward	Kettering
	Stanwick Ward	East Northants
	West Ward	Wellingborough
	Wollaston Ward	Wellingborough
	Woodford Ward	Daventry
70	Barton Ward	Kettering
	Boughton and Pitsford Ward	Daventry
	Earls Barton Ward	Wellingborough
	Higham Ferrers Lancaster Ward	East Northants
	Kings Sutton Ward	South Northants
	Middleton Cheney Ward	South Northants
	Moulton Ward	Daventry
	Ravensthorpe Ward	Daventry
	Rothwell Ward	Kettering
	Steane Ward	South Northants
	Walgrave Ward	Daventry
	Welford Ward	Daventry
83	Weston Ward	Northampton
	Abbey North Ward	Daventry
	Abbey South Ward	Daventry
	Badby Ward	Daventry
	Brackley South Ward	South Northants
	Deanshanger Ward	South Northants
	Eastfield Ward	Northampton
	Hill Ward	Daventry
	Kingthorn Ward	South Northants
	North Ward	Wellingborough
	Old Stratford Ward	South Northants
	Salcey Ward	South Northants
	Thorplands Ward	Northampton
	Thrapston Lakes Ward	East Northants
Tove Ward	South Northants	
97	Boughton Green Ward	Northampton
	Central Ward	Corby
	Desborough Loatland Ward	Kettering
	Desborough St. Giles Ward	Kettering

Priority	Ward Name	District/ Borough	
97	Grange Park Ward	South Northants	
	Great Oakley Ward	Corby	
	Northfield Ward	Kettering	
	Oakley Vale Ward	Corby	
	Queensway Ward	Wellingborough	
	Redwell East Ward	Wellingborough	
	Rural West Ward	Corby	
	Silverstone Ward	South Northants	
	Spratton Ward	Daventry	
	Towcester Brook Ward	South Northants	
	West Haddon and Guilsborough Ward	Daventry	
	West Hunsbury Ward	Northampton	
	113	Braunston Ward	Daventry
		Drayton Ward	Daventry
Ecton Brook Ward		Northampton	
Irthlingborough Waterloo Ward		East Northants	
Ise Lodge Ward		Kettering	
Pipers Hill Ward		Kettering	
Redwell West Ward		Wellingborough	
Rowlett Ward		Corby	
St. David Ward		Northampton	
Tower Hill Ward	Corby		

Priority	Ward Name	District/ Borough
113	Whittlewood Ward	South Northants
124	Beanfield Ward	Corby
	Brickhill Ward	Wellingborough
	East Hunsbury Ward	Northampton
	East Ward	Corby
	Finedon Ward	Wellingborough
	Headlands Ward	Northampton
	Higham Ferrers Chichele Ward	East Northants
	Irthlingborough John Pyel Ward	East Northants
	Kingswood Ward	Corby
	Lodge Park Ward	Corby
	William Knibb Ward	Kettering
135	Brackley West Ward	South Northants
	New Duston Ward	Northampton
	Rushden Bates Ward	East Northants
	Shire Lodge Ward	Corby
139	Abington Ward	Northampton
	All Saints Ward	Kettering
	Avondale Grange Ward	Kettering
	Brambleside Ward	Kettering
	Old Duston Ward	Northampton
	Rushden Pemberton Ward	East Northants

## Flood Map for Surface Water - 1 in 200

Map A 15: Priority Assessment for Flood Map for Surface Water 1 in 200

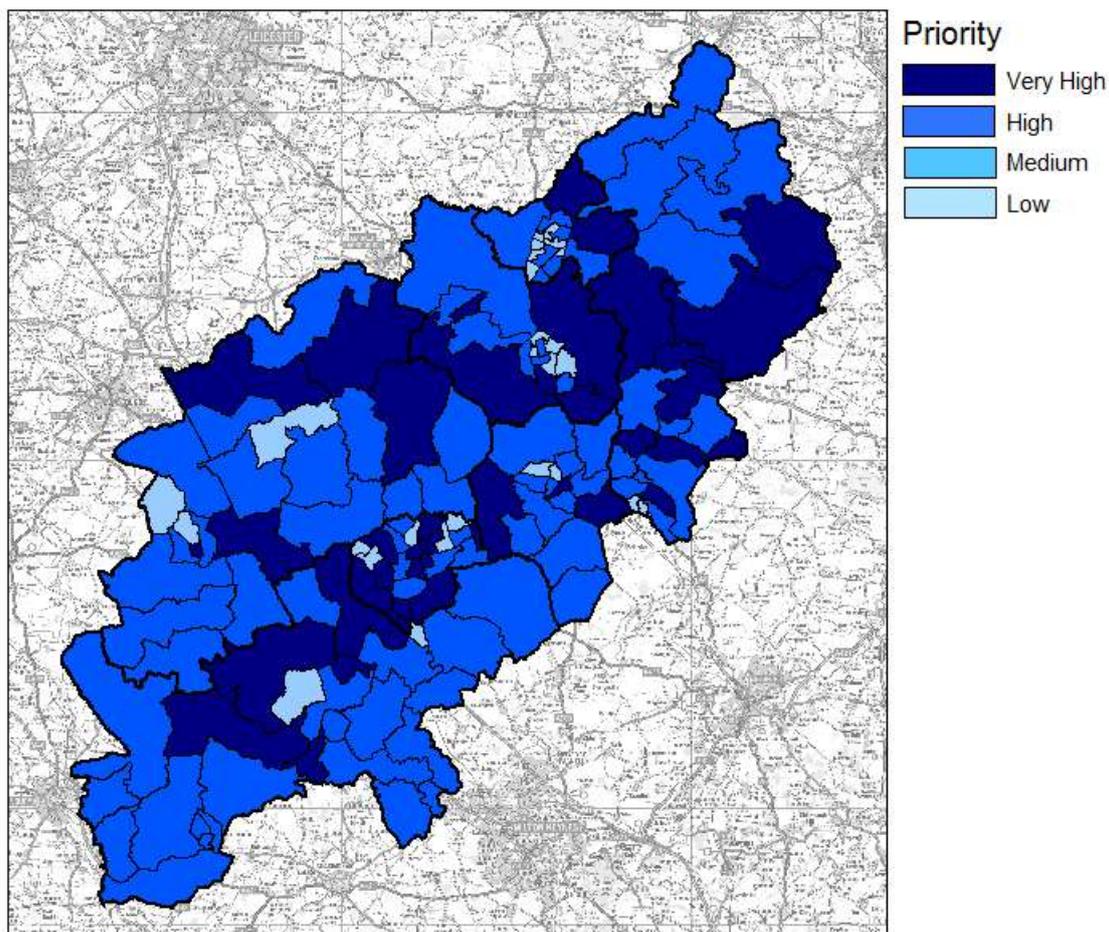


Table A 4 Results of Priority Assessment for Flood Map for Surface Water 1 in 200

Priority	Ward Name	District/ Borough
1	Lyveden Ward	East Northants
	St. Crispin Ward	Northampton
	St. James Ward	Northampton
	Swanspool Ward	Wellingborough
	Thrapston Market Ward	East Northants
	Weldon and Gretton Ward	Corby
7	Spencer Ward	Northampton
	Thrapston Lakes Ward	East Northants
9	Blakesley and Cote Ward	South Northants
	Yelvertoft Ward	Daventry
11	Eastfield Ward	Northampton
	Parklands Ward	Northampton
11	Queen Eleanor and Buccleuch Ward	Kettering
	West Hunsbury Ward	Northampton
15	East Hunsbury Ward	Northampton
	Rushden Hayden Ward	East Northants
	St. Michael's and Wicksteed Ward	Kettering
18	Abbey South Ward	Daventry
	Abington Ward	Northampton
	Barnwell Ward	East Northants
	Brixworth Ward	Daventry
	Clipston Ward	Daventry
	Desborough St. Giles Ward	Kettering
	Flore Ward	Daventry

Priority	Ward Name	District/ Borough
18	Harpole and Grange Ward	South Northants
	Irchester Ward	Wellingborough
	Lower Nene Ward	East Northants
	Nene Valley Ward	Northampton
	Silverstone Ward	South Northants
	Slade Ward	Kettering
	Washington Ward	South Northants
	West Ward	Wellingborough
33	Burton Latimer Ward	Kettering
	Ecton Brook Ward	Northampton
	Irthlingborough Waterloo Ward	East Northants
	Kingsley Ward	Northampton
	Stanwick Ward	East Northants
38	Billing Ward	Northampton
	Boughton Green Ward	Northampton
	Brafield and Yardley Ward	South Northants
	Brickhill Ward	Wellingborough
	Castle Ward	Northampton
	Crick Ward	Daventry
	Danvers and Wardoun Ward	South Northants
	Fineshade Ward	East Northants
	Heyfords and Bugbrooke Ward	South Northants
	King's Forest Ward	East Northants
	Little Brook Ward	South Northants
	Long Buckby Ward	Daventry
	Old Stratford Ward	South Northants
	Oundle Ward	East Northants
	Prebendal Ward	East Northants
	Ravensthorpe Ward	Daventry
	Weedon Ward	Daventry
	Welford Ward	Daventry
	Welland Ward	Kettering
	Woodford Ward	East Northants
58	Barby and Kilsby Ward	Daventry
	Barton Ward	Kettering
	Blisworth and Roade Ward	South Northants
	Brackley West Ward	South Northants
	Croyland Ward	Wellingborough
	Delapre Ward	Northampton
	Drayton Ward	Daventry

Priority	Ward Name	District/ Borough
58	Moulton Ward	Daventry
	Raunds Saxon Ward	East Northants
	Rothwell Ward	Kettering
	Rushden Spencer Ward	East Northants
	Woodford Ward	Daventry
70	Badby Ward	Daventry
	Brampton Ward	Daventry
	Byfield Ward	Daventry
	Castle Ward	Wellingborough
	Kingswood Ward	Corby
	Lumbertubs Ward	Northampton
	Oakley Vale Ward	Corby
	Spratton Ward	Daventry
Steane Ward	South Northants	
Towcester Mill Ward	South Northants	
80	Astwell Ward	South Northants
	Brackley East Ward	South Northants
	Cosgrove and Grafton Ward	South Northants
	Earls Barton Ward	Wellingborough
	Finedon Ward	Wellingborough
	Great Doddington and Wilby Ward	Wellingborough
	Hackleton Ward	South Northants
	Higham Ferrers Lancaster Ward	East Northants
	Queensway Ward	Wellingborough
	Rural West Ward	Corby
	Rushden Bates Ward	East Northants
	Shire Lodge Ward	Corby
	Stanion and Corby Village Ward	Corby
	Walgrave Ward	Daventry
	Weston Ward	Northampton
	Whittlewood Ward	South Northants
	Wollaston Ward	Wellingborough
97	All Saints Ward	Kettering
	East Ward	Corby
	Hemmingwell Ward	Wellingborough
	St. Peter's Ward	Kettering
102	William Knibb Ward	Kettering
	Boughton and Pitsford Ward	Daventry
	Brackley South Ward	South Northants
	Deanshanger Ward	South Northants

Priority	Ward Name	District/ Borough
102	Desborough Loatland Ward	Kettering
	Great Oakley Ward	Corby
	Higham Ferrers Chichele Ward	East Northants
	Hill Ward	Daventry
	Irthlingborough John Pyel Ward	East Northants
	Kings Sutton Ward	South Northants
	Kingsthorpe Ward	Northampton
	Middleton Cheney Ward	South Northants
	North Ward	Wellingborough
	Raunds Windmill Ward	East Northants
	Salcey Ward	South Northants
	South Ward	Wellingborough
	Tove Ward	South Northants
	Towcester Brook Ward	South Northants
	119	Danesholme Ward
Pipers Hill Ward		Kettering
Redwell East Ward		Wellingborough
Rowlett Ward		Corby
St. David Ward		Northampton
Thorplands Ward	Northampton	

Priority	Ward Name	District/ Borough	
125	Abbey North Ward	Daventry	
	Avondale Grange Ward	Kettering	
	Beanfield Ward	Corby	
	Brambleside Ward	Kettering	
	Braunston Ward	Daventry	
	Central Ward	Corby	
	Exeter Ward	Corby	
	Headlands Ward	Northampton	
	Kingthorn Ward	South Northants	
	Lodge Park Ward	Corby	
	New Duston Ward	Northampton	
	Northfield Ward	Kettering	
	Old Duston Ward	Northampton	
	Rushden Pemberton Ward	East Northants	
	Rushden Sartoris Ward	East Northants	
	Tower Hill Ward	Corby	
	West Haddon and Guilsborough Ward	Daventry	
	142	Ise Lodge Ward	Kettering
		Redwell West Ward	Wellingborough
		Grange Park Ward	South Northants

## Flood Map for Surface Water - 1 in 200 deep

Map A 16: Priority Assessment for Flood Map for Surface Water 1 in 200 deep

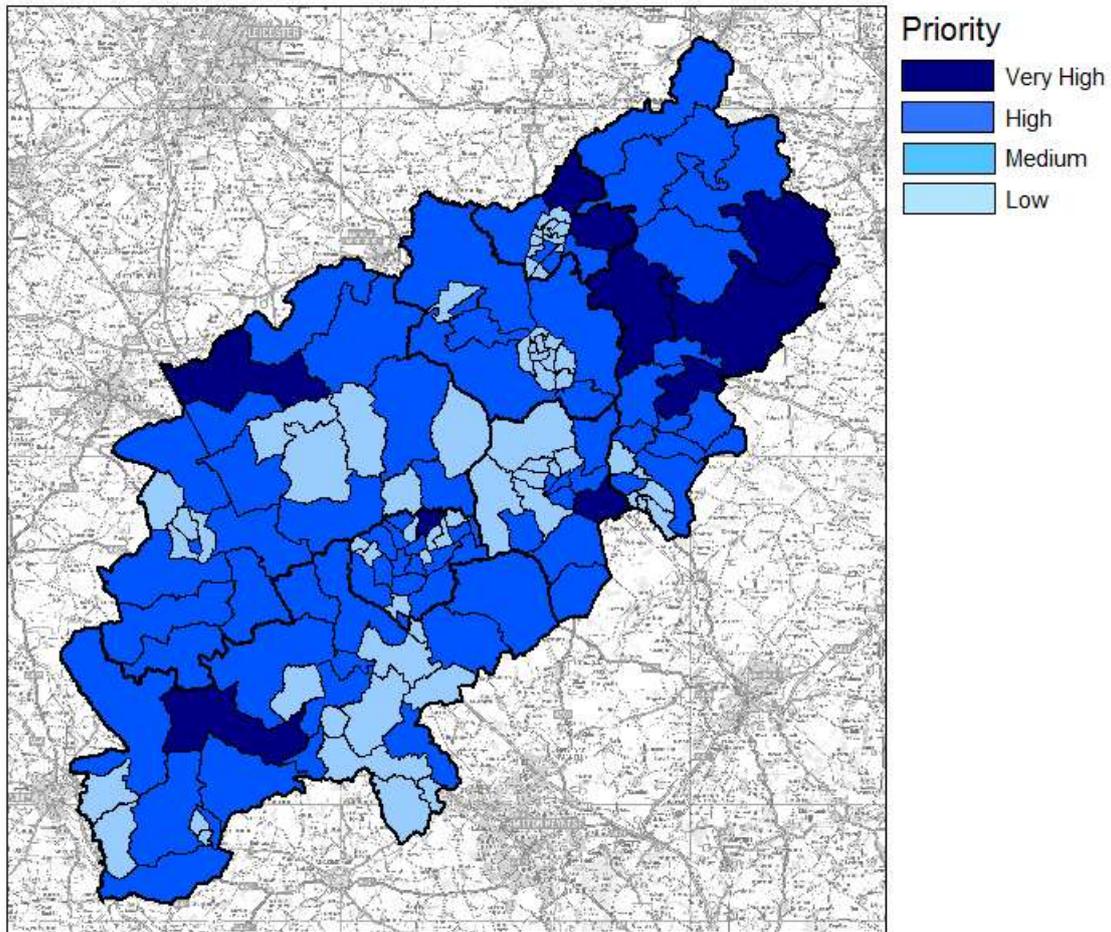


Table A 5 Results of Priority Assessment for Flood Map for Surface Water 1 in 200 deep

Priority	Ward Name	District/ Borough
1	Lyveden Ward	East Northants
2	Lower Nene Ward	East Northants
	Thrapston Market Ward	East Northants
	Weldon and Gretton Ward	Corby
5	Barnwell Ward	East Northants
	Irchester Ward	Wellingborough
	Parklands Ward	Northampton
	Washington Ward	South Northants
10	Yelvertoft Ward	Daventry
	Blakesley and Cote Ward	South Northants
	Brafield and Yardley Ward	South Northants
	Brickhill Ward	Wellingborough
	Brixworth Ward	Daventry
10	Danvers and Wardoun Ward	South Northants
	Prebendal Ward	East Northants
	Queen Eleanor and Buccleuch Ward	Kettering
	Silverstone Ward	South Northants
	Weedon Ward	Daventry
	Welland Ward	Kettering
20	Little Brook Ward	South Northants
	Moulton Ward	Daventry
	Nene Valley Ward	Northampton
	Rushden Spencer Ward	East Northants
	Slade Ward	Kettering
	Swanspool Ward	Wellingborough
	West Hunsbury Ward	Northampton

Priority	Ward Name	District/ Borough
27	Brampton Ward	Daventry
	Byfield Ward	Daventry
	Fineshade Ward	East Northants
	King's Forest Ward	East Northants
	Oundle Ward	East Northants
	St. Crispin Ward	Northampton
	Towcester Mill Ward	South Northants
	Welford Ward	Daventry
35	Abbey South Ward	Daventry
	Barby and Kilsby Ward	Daventry
	Billing Ward	Northampton
	Boughton Green Ward	Northampton
	Clipston Ward	Daventry
	Crick Ward	Daventry
	Delapre Ward	Northampton
	Earls Barton Ward	Wellingborough
	Long Buckby Ward	Daventry
	Raunds Saxon Ward	East Northants
	Rothwell Ward	Kettering
	Rural West Ward	Corby
	St. James Ward	Northampton
	Stanion and Corby Village Ward	Corby
	Stanwick Ward	East Northants
	Thrapston Lakes Ward	East Northants
Weston Ward	Northampton	
Woodford Ward	Daventry	
53	Astell Ward	South Northants
	Burton Latimer Ward	Kettering
	Croyland Ward	Wellingborough
	Flore Ward	Daventry
	Hackleton Ward	South Northants
	Kingsley Ward	Northampton
	Steane Ward	South Northants
60	Badby Ward	Daventry
	Brackley East Ward	South Northants
	Castle Ward	Northampton
	Castle Ward	Wellingborough
	Cosgrove and Grafton Ward	South Northants
	Desborough St. Giles Ward	Kettering

Priority	Ward Name	District/ Borough
60	Ecton Brook Ward	Northampton
	Finedon Ward	Wellingborough
	Harpole and Grange Ward	South Northants
	Heyfords and Bugbrooke Ward	South Northants
	Higham Ferrers Lancaster Ward	East Northants
	Irthlingborough Waterloo Ward	East Northants
	Kingsthorpe Ward	Northampton
	Kingswood Ward	Corby
	Lumbertubs Ward	Northampton
	Oakley Vale Ward	Corby
	Raunds Windmill Ward	East Northants
	South Ward	Wellingborough
	Spencer Ward	Northampton
	Wollaston Ward	Wellingborough
Woodford Ward	East Northants	
81	Barton Ward	Kettering
	Blisworth and Roade Ward	South Northants
	Danesholme Ward	Corby
	Drayton Ward	Daventry
	Eastfield Ward	Northampton
	Great Doddington and Wilby Ward	Wellingborough
	Pipers Hill Ward	Kettering
	Queensway Ward	Wellingborough
	Rowlett Ward	Corby
	Salcey Ward	South Northants
	Shire Lodge Ward	Corby
	St. David Ward	Northampton
	St. Michael's and Wicksteed Ward	Kettering
	St. Peter's Ward	Kettering
Tove Ward	South Northants	
West Ward	Wellingborough	
97	All Saints Ward	Kettering
	Avondale Grange Ward	Kettering
	Boughton and Pitsford Ward	Daventry
	Central Ward	Corby
	Deanshanger Ward	South Northants
	East Ward	Corby
	Headlands Ward	Northampton
Hemmingwell Ward	Wellingborough	

Priority	Ward Name	District/ Borough
97	Hill Ward	Daventry
	Irthlingborough John Pyel Ward	East Northants
	Kings Sutton Ward	South Northants
	New Duston Ward	Northampton
	Old Duston Ward	Northampton
	Rushden Bates Ward	East Northants
	Rushden Hayden Ward	East Northants
	Rushden Sartoris Ward	East Northants
	Thorplands Ward	Northampton
	Whittlewood Ward	South Northants
	William Knibb Ward	Kettering
116	Abbey North Ward	Daventry
	Beanfield Ward	Corby
	Brackley South Ward	South Northants
	Brambleside Ward	Kettering
	Desborough Loatland Ward	Kettering
	East Hunsbury Ward	Northampton
	Exeter Ward	Corby
	Lodge Park Ward	Corby
Middleton Cheney Ward	South Northants	

Priority	Ward Name	District/ Borough
116	North Ward	Wellingborough
	Northfield Ward	Kettering
	Old Stratford Ward	South Northants
	Ravensthorpe Ward	Daventry
	Rushden Pemberton Ward	East Northants
	Towcester Brook Ward	South Northants
	Walgrave Ward	Daventry
	132	Abington Ward
Braunston Ward		Daventry
Grange Park Ward		South Northants
Great Oakley Ward		Corby
Kingthorn Ward		South Northants
Spratton Ward		Daventry
139	West Haddon and Guilsborough Ward	Daventry
	Brackley West Ward	South Northants
	Higham Ferrers Chichele Ward	East Northants
	Ise Lodge Ward	Kettering
	Redwell East Ward	Wellingborough
	Redwell West Ward	Wellingborough
	Tower Hill Ward	Corby

## Flood Map for Surface Water - 1 in 30

Map A 17: Priority Assessment for Flood Map for Surface Water 1 in 30

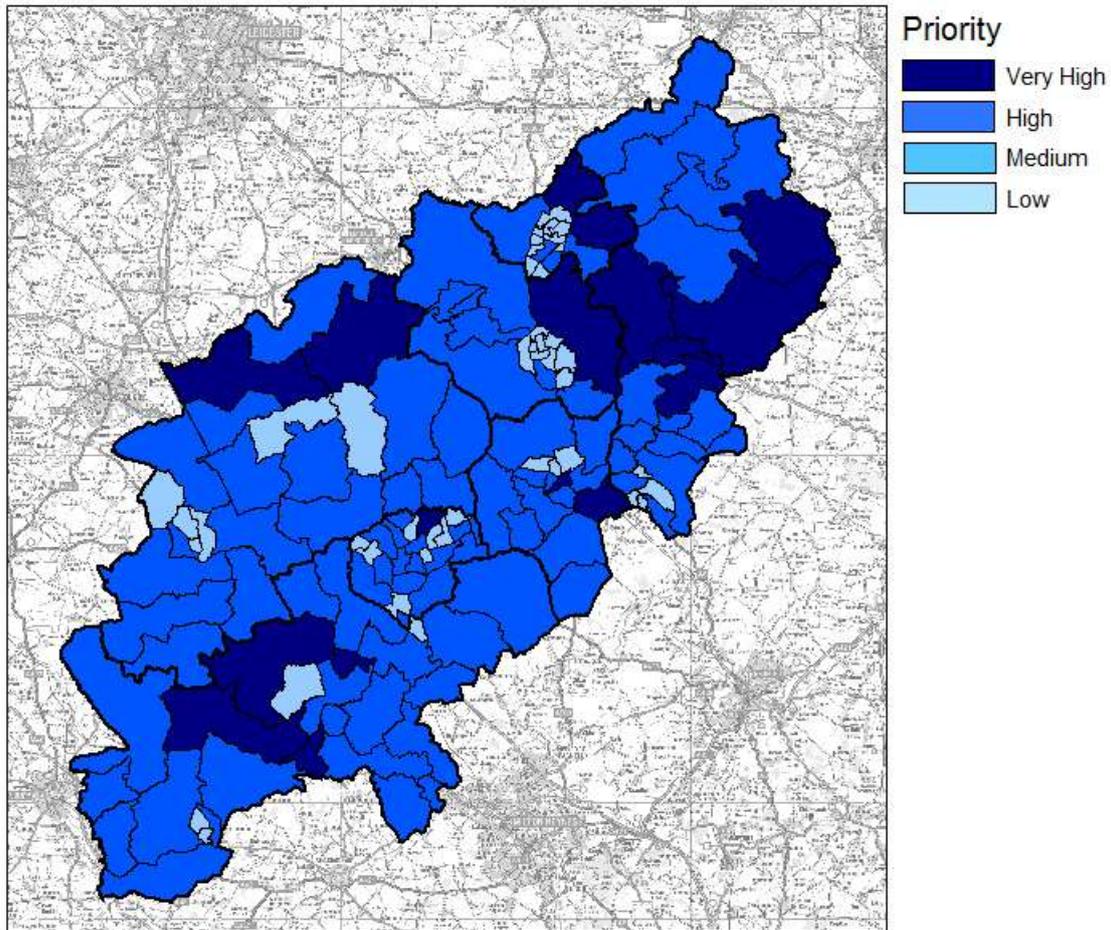


Table A 6 Results of Priority Assessment for Flood Map for Surface Water 1 in 30

Priority	Ward Name	District/ Borough
1	Lyveden Ward	East Northants
	Thrapston Market Ward	East Northants
3	Weldon and Gretton Ward	Corby
4	Thrapston Lakes Ward	East Northants
5	Blakesley and Cote Ward	South Northants
	Yelvertoft Ward	Daventry
7	Swanspool Ward	Wellingborough
8	Barnwell Ward	East Northants
	Clipston Ward	Daventry
	Irchester Ward	Wellingborough
	Lower Nene Ward	East Northants
	Parklands Ward	Northampton
8	Queen Eleanor and Buccleuch Ward	Kettering
	Silverstone Ward	South Northants
16	Washington Ward	South Northants
	Brafield and Yardley Ward	South Northants
	Brickhill Ward	Wellingborough
	Brixworth Ward	Daventry
	Danvers and Wardoun Ward	South Northants
	Fineshade Ward	East Northants
	Flore Ward	Daventry
	King's Forest Ward	East Northants
	Little Brook Ward	South Northants
	Prebendal Ward	East Northants

Priority	Ward Name	District/ Borough
16	Raunds Saxon Ward	East Northants
	Weedon Ward	Daventry
	Welford Ward	Daventry
	Welland Ward	Kettering
29	Moulton Ward	Daventry
	Nene Valley Ward	Northampton
	Rushden Spencer Ward	East Northants
	Slade Ward	Kettering
	West Ward	Wellingborough
34	Brampton Ward	Daventry
	Byfield Ward	Daventry
	Harpole and Grange Ward	South Northants
	Heyfords and Bugbrooke Ward	South Northants
	Long Buckby Ward	Daventry
	Oundle Ward	East Northants
	Ravensthorpe Ward	Daventry
	St. Crispin Ward	Northampton
	Steane Ward	South Northants
	Towcester Mill Ward	South Northants
44	Astell Ward	South Northants
	Barby and Kilsby Ward	Daventry
	Billing Ward	Northampton
	Blisworth and Roade Ward	South Northants
	Boughton Green Ward	Northampton
	Brackley East Ward	South Northants
	Crick Ward	Daventry
	Delapre Ward	Northampton
	Earls Barton Ward	Wellingborough
	Great Doddington and Wilby Ward	Wellingborough
	Hackleton Ward	South Northants
	Queensway Ward	Wellingborough
	Rothwell Ward	Kettering
	Rural West Ward	Corby
	Rushden Bates Ward	East Northants
	St. James Ward	Northampton
	Stanion and Corby Village Ward	Corby
	West Hunsbury Ward	Northampton
Weston Ward	Northampton	

Priority	Ward Name	District/ Borough
44	Wollaston Ward	Wellingborough
	Woodford Ward	East Northants
	Woodford Ward	Daventry
66	Burton Latimer Ward	Kettering
	Cosgrove and Grafton Ward	South Northants
	Croyland Ward	Wellingborough
	Drayton Ward	Daventry
	Higham Ferrers Lancaster Ward	East Northants
	Kingsley Ward	Northampton
	Oakley Vale Ward	Corby
74	St. Michael's and Wicksteed Ward	Kettering
	Badby Ward	Daventry
	Boughton and Pitsford Ward	Daventry
	Castle Ward	Northampton
	Castle Ward	Wellingborough
	Deanshanger Ward	South Northants
	Desborough Loatland Ward	Kettering
	Desborough St. Giles Ward	Kettering
	Ecton Brook Ward	Northampton
	Finedon Ward	Wellingborough
	Irthlingborough John Pyel Ward	East Northants
	Irthlingborough Waterloo Ward	East Northants
	Kings Sutton Ward	South Northants
	Kingsthorpe Ward	Northampton
	Kingswood Ward	Corby
	Lumbertubs Ward	Northampton
	Middleton Cheney Ward	South Northants
	North Ward	Wellingborough
Old Stratford Ward	South Northants	
Raunds Windmill Ward	East Northants	
Salcey Ward	South Northants	
South Ward	Wellingborough	
Spencer Ward	Northampton	
Stanwick Ward	East Northants	
Tove Ward	South Northants	
Towcester Brook Ward	South Northants	
Walgrave Ward	Daventry	
Whittlewood Ward	South Northants	

Priority	Ward Name	District/ Borough
101	Barton Ward	Kettering
	Danesholme Ward	Corby
	Eastfield Ward	Northampton
	Great Oakley Ward	Corby
	Hill Ward	Daventry
	Pipers Hill Ward	Kettering
	Rowlett Ward	Corby
	Shire Lodge Ward	Corby
	St. David Ward	Northampton
	St. Peter's Ward	Kettering
	Thorplands Ward	Northampton
112	Abbey North Ward	Daventry
	Abbey South Ward	Daventry
	All Saints Ward	Kettering
	Avondale Grange Ward	Kettering
	Beanfield Ward	Corby
	Brambleside Ward	Kettering
	Central Ward	Corby
	East Ward	Corby
	Headlands Ward	Northampton
	Hemmingwell Ward	Wellingborough
	Kingthorn Ward	South Northants

Priority	Ward Name	District/ Borough
112	New Duston Ward	Northampton
	Old Duston Ward	Northampton
	Rushden Hayden Ward	East Northants
	Rushden Pemberton Ward	East Northants
	Rushden Sartoris Ward	East Northants
	Spratton Ward	Daventry
	West Haddon and Guilsborough Ward	Daventry
	William Knibb Ward	Kettering
	131	Brackley South Ward
Brackley West Ward		South Northants
Braunston Ward		Daventry
East Hunsbury Ward		Northampton
Exeter Ward		Corby
Higham Ferrers Chichele Ward		East Northants
Lodge Park Ward		Corby
Northfield Ward		Kettering
140	Tower Hill Ward	Corby
	Abington Ward	Northampton
	Grange Park Ward	South Northants
144	Ise Lodge Ward	Kettering
	Redwell West Ward	Wellingborough
144	Redwell East Ward	Wellingborough

## Flood Map For Surface Water - 1 in 30 deep

Map A 18: Priority Assessment for Flood Map for Surface Water 1 in 30 deep

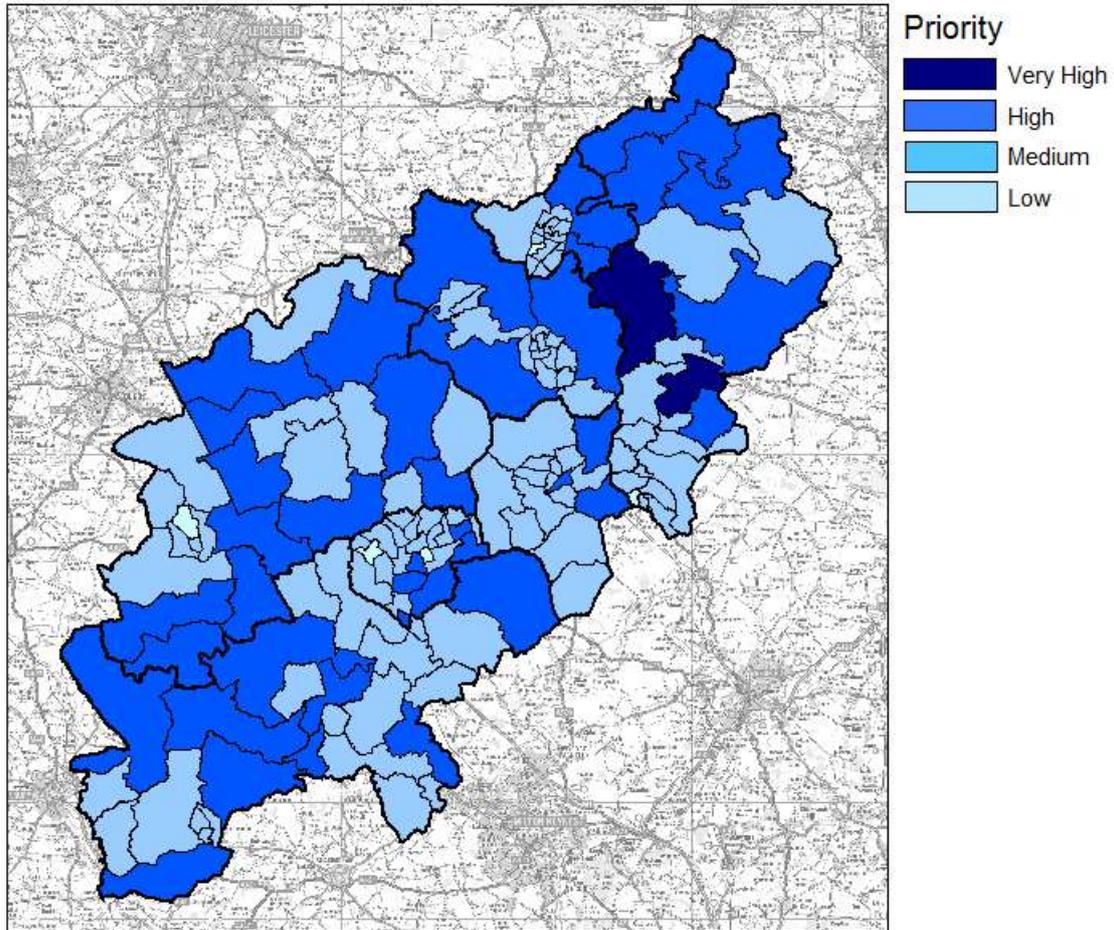


Table A 7 Results of Priority Assessment for Flood Map for Surface Water 1 in 30 deep

Priority	Ward Name	District/ Borough	Priority	Ward Name	District/ Borough
1	Lyveden Ward	East Northants	12	Little Brook Ward	South Northants
2	Thrapston Market Ward	East Northants		Queen Eleanor and Buccleuch Ward	Kettering
3	Barnwell Ward	East Northants		Welland Ward	Kettering
	Brafield and Yardley Ward	South Northants	17	Brampton Ward	Daventry
	Moulton Ward	Daventry		Brixworth Ward	Daventry
	Raunds Saxon Ward	East Northants		Fineshade Ward	East Northants
Silverstone Ward	South Northants	King's Forest Ward		East Northants	
8	Blakesley and Cote Ward	South Northants	Prebendal Ward	East Northants	
	Washington Ward	South Northants	Slade Ward	Kettering	
	Weedon Ward	Daventry	St. Crispin Ward	Northampton	
	Yelvertoft Ward	Daventry	Swanspool Ward	Wellingborough	
12	Danvers and Wardoun Ward	South Northants	Weldon and Gretton Ward	Corby	
	Irchester Ward	Wellingborough	26	Billing Ward	Northampton

Priority	Ward Name	District/ Borough
26	Byfield Ward	Daventry
	Clipston Ward	Daventry
	Crick Ward	Daventry
	Delapre Ward	Northampton
	Flore Ward	Daventry
	Long Buckby Ward	Daventry
	Stanion and Corby Village Ward	Corby
	Towcester Mill Ward	South Northants
	Woodford Ward	Daventry
36	Astwell Ward	South Northants
	Cosgrove and Grafton Ward	South Northants
	Finedon Ward	Wellingborough
	Lumbertubs Ward	Northampton
	Nene Valley Ward	Northampton
41	Barby and Kilsby Ward	Daventry
	Blisworth and Roade Ward	South Northants
	Brickhill Ward	Wellingborough
	Burton Latimer Ward	Kettering
	Castle Ward	Northampton
	Castle Ward	Wellingborough
	Earls Barton Ward	Wellingborough
	Higham Ferrers Lancaster Ward	East Northants
	Irthlingborough Waterloo Ward	East Northants
	Kingsthorpe Ward	Northampton
	Lower Nene Ward	East Northants
	Oundle Ward	East Northants
	Rothwell Ward	Kettering
	Rushden Spencer Ward	East Northants
	Spencer Ward	Northampton
	St. James Ward	Northampton
	Welford Ward	Daventry
	West Hunsbury Ward	Northampton
	West Ward	Wellingborough
	Weston Ward	Northampton
Wollaston Ward	Wellingborough	
Woodford Ward	East Northants	
63	Badby Ward	Daventry
	Barton Ward	Kettering
	Boughton and Pitsford Ward	Daventry

Priority	Ward Name	District/ Borough
63	Brackley East Ward	South Northants
	Croyland Ward	Wellingborough
	Danesholme Ward	Corby
	Deanshanger Ward	South Northants
	Desborough St. Giles Ward	Kettering
	Drayton Ward	Daventry
	Eastfield Ward	Northampton
	Ecton Brook Ward	Northampton
	Hackleton Ward	South Northants
	Harpole and Grange Ward	South Northants
	Hemmingwell Ward	Wellingborough
	Heyfords and Bugbrooke Ward	South Northants
	Kings Sutton Ward	South Northants
	Parklands Ward	Northampton
	Raunds Windmill Ward	East Northants
	Rowlett Ward	Corby
	Rushden Bates Ward	East Northants
	Rushden Hayden Ward	East Northants
	Rushden Sartoris Ward	East Northants
	Salcey Ward	South Northants
	Shire Lodge Ward	Corby
	St. Michael's and Wicksteed Ward	Kettering
	St. Peter's Ward	Kettering
	Stanwick Ward	East Northants
	Steane Ward	South Northants
	Thorplands Ward	Northampton
Tove Ward	South Northants	
96	Avondale Grange Ward	Kettering
	Beanfield Ward	Corby
	Brackley South Ward	South Northants
	Brambleside Ward	Kettering
	Exeter Ward	Corby
	Great Doddington and Wilby Ward	Wellingborough
	Great Oakley Ward	Corby
	Irthlingborough John Pyel Ward	East Northants
	Kingswood Ward	Corby
	Lodge Park Ward	Corby
Middleton Cheney Ward	South Northants	
North Ward	Wellingborough	

Priority	Ward Name	District/ Borough
96	Oakley Vale Ward	Corby
	Old Stratford Ward	South Northants
	Queensway Ward	Wellingborough
	Ravensthorpe Ward	Daventry
	Rural West Ward	Corby
	South Ward	Wellingborough
	Thrapston Lakes Ward	East Northants
	Towcester Brook Ward	South Northants
	Walgrave Ward	Daventry
114	All Saints Ward	Kettering
	Braunston Ward	Daventry
	East Hunsbury Ward	Northampton
	Hill Ward	Daventry
	Kingsley Ward	Northampton
	Kingthorn Ward	South Northants
	Northfield Ward	Kettering
	Pipers Hill Ward	Kettering
	Spratton Ward	Daventry
	St. David Ward	Northampton
	West Haddon and Guilsborough Ward	Daventry

Priority	Ward Name	District/ Borough
114	Whittlewood Ward	South Northants
126	Abbey South Ward	Daventry
	Boughton Green Ward	Northampton
	Brackley West Ward	South Northants
	Central Ward	Corby
	Desborough Loatland Ward	Kettering
	East Ward	Corby
	Headlands Ward	Northampton
	Higham Ferrers Chichele Ward	East Northants
	Ise Lodge Ward	Kettering
	New Duston Ward	Northampton
	Redwell East Ward	Wellingborough
Redwell West Ward	Wellingborough	
William Knibb Ward	Kettering	
139	Grange Park Ward	South Northants
140	Abbey North Ward	Daventry
	Abington Ward	Northampton
	Old Duston Ward	Northampton
	Rushden Pemberton Ward	East Northants
144	Tower Hill Ward	Corby

## Fluvial Flood Map Flood Zone 2

Map A 19: Priority Assessment for Fluvial Flood Map Flood Zone 2

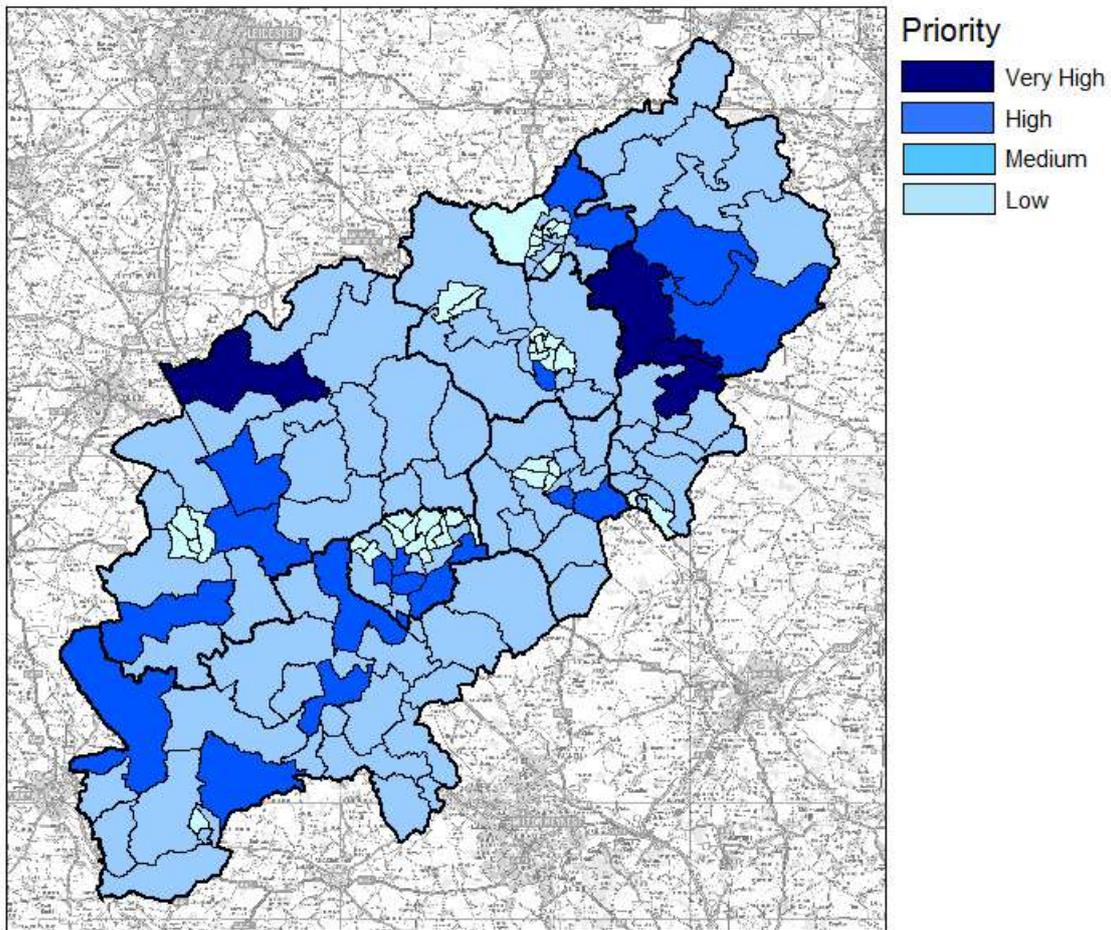


Table A 8 Results of Priority Assessment for Fluvial Flood Map Flood Zone 2

Priority	Ward Name	District/ Borough
1	Thrapston Lakes Ward	East Northants
2	Thrapston Market Ward	East Northants
	Yelvertoft Ward	Daventry
4	Lyveden Ward	East Northants
5	Barnwell Ward	East Northants
6	Castle Ward	Northampton
	St. Michael's and Wicksteed Ward	Kettering
8	Billing Ward	Northampton
	Danvers and Wardoun Ward	South Northants
	Delapre Ward	Northampton
	Nene Valley Ward	Northampton
14	Flore Ward	Daventry
	Harpole and Grange Ward	South Northants
	Irchester Ward	Wellingborough
	Long Buckby Ward	Daventry
19	Weldon and Gretton Ward	Corby
	Astwell Ward	South Northants
	Byfield Ward	Daventry
	Croyland Ward	Wellingborough
23	Oundle Ward	East Northants
	Brafield and Yardley Ward	South Northants
	Castle Ward	Wellingborough
	Clipston Ward	Daventry
	Danesholme Ward	Corby

Priority	Ward Name	District/ Borough
23	Irthlingborough Waterloo Ward	East Northants
	Lower Nene Ward	East Northants
	Prebendal Ward	East Northants
	Queen Eleanor and Buccleuch Ward	Kettering
	Rushden Spencer Ward	East Northants
	Spencer Ward	Northampton
	St. Crispin Ward	Northampton
	Swanspool Ward	Wellingborough
	Weedon Ward	Daventry
	Welland Ward	Kettering
	West Hunsbury Ward	Northampton
	Weston Ward	Northampton
	Wollaston Ward	Wellingborough
	Woodford Ward	East Northants
Woodford Ward	Daventry	
42	Barby and Kilsby Ward	Daventry
	Barton Ward	Kettering
	Brackley East Ward	South Northants
	Brixworth Ward	Daventry
	Cosgrove and Grafton Ward	South Northants
	Fineshade Ward	East Northants
	Heyfords and Bugbrooke Ward	South Northants
	Kings Sutton Ward	South Northants
	Little Brook Ward	South Northants
	Stanwick Ward	East Northants
West Ward	Wellingborough	
53	Blakesley and Cote Ward	South Northants
	Central Ward	Corby
	Crick Ward	Daventry
	Exeter Ward	Corby
	Great Doddington and Wilby Ward	Wellingborough
	Hemmingwell Ward	Wellingborough
	King's Forest Ward	East Northants
	Kingswood Ward	Corby
	Lumbertubs Ward	Northampton
	Ravensthorpe Ward	Daventry
Shire Lodge Ward	Corby	

Priority	Ward Name	District/ Borough
53	Slade Ward	Kettering
	St. Peter's Ward	Kettering
	Stanion and Corby Village Ward	Corby
	Tove Ward	South Northants
	Towcester Brook Ward	South Northants
	Washington Ward	South Northants
	Blisworth and Roade Ward	South Northants
70	Brampton Ward	Daventry
	Burton Latimer Ward	Kettering
	Earls Barton Ward	Wellingborough
	East Hunsbury Ward	Northampton
	Finedon Ward	Wellingborough
	Great Oakley Ward	Corby
	Hackleton Ward	South Northants
	Higham Ferrers Chichele Ward	East Northants
	Irthlingborough John Pyel Ward	East Northants
	Middleton Cheney Ward	South Northants
	Moulton Ward	Daventry
	Raunds Windmill Ward	East Northants
	Rushden Hayden Ward	East Northants
South Ward	Wellingborough	
Whittlewood Ward	South Northants	
86	Boughton and Pitsford Ward	Daventry
	Brackley South Ward	South Northants
	Braunston Ward	Daventry
	Deanshanger Ward	South Northants
	Higham Ferrers Lancaster Ward	East Northants
	Kingthorn Ward	South Northants
	North Ward	Wellingborough
	Old Stratford Ward	South Northants
	Raunds Saxon Ward	East Northants
	Rothwell Ward	Kettering
	Silverstone Ward	South Northants
	Spratton Ward	Daventry
	Walgrave Ward	Daventry
Welford Ward	Daventry	
100	Badby Ward	Daventry

Priority	Ward Name	District/ Borough
100	Grange Park Ward	South Northants
	Rushden Sartoris Ward	East Northants
	Salcey Ward	South Northants
	Steane Ward	South Northants
	West Haddon and Guilsborough Ward	Daventry
106	Brambleside Ward	Kettering
	East Ward	Corby
	Ecton Brook Ward	Northampton
	Kingsthorpe Ward	Northampton
	Rowlett Ward	Corby
	Rural West Ward	Corby
	Rushden Pemberton Ward	East Northants
	Thorplands Ward	Northampton
	William Knibb Ward	Kettering
115	Avondale Grange Ward	Kettering
	Desborough St. Giles Ward	Kettering
	Lodge Park Ward	Corby
	New Duston Ward	Northampton
	Northfield Ward	Kettering
	Oakley Vale Ward	Corby
121	Hill Ward	Daventry
	Ise Lodge Ward	Kettering

Priority	Ward Name	District/ Borough
121	Pipers Hill Ward	Kettering
124	Abbey North Ward	Daventry
	Abbey South Ward	Daventry
	Abington Ward	Northampton
	All Saints Ward	Kettering
	Beanfield Ward	Corby
	Boughton Green Ward	Northampton
	Brackley West Ward	South Northants
	Brickhill Ward	Wellingborough
	Desborough Loatland Ward	Kettering
	Drayton Ward	Daventry
	Eastfield Ward	Northampton
	Headlands Ward	Northampton
	Kingsley Ward	Northampton
	Old Duston Ward	Northampton
	Parklands Ward	Northampton
	Queensway Ward	Wellingborough
	Redwell East Ward	Wellingborough
	Redwell West Ward	Wellingborough
	Rushden Bates Ward	East Northants
	St. David Ward	Northampton
	Tower Hill Ward	Corby

## Flood Zone 3

Map A 20: Priority Assessment for Fluvial Flood Zone 3

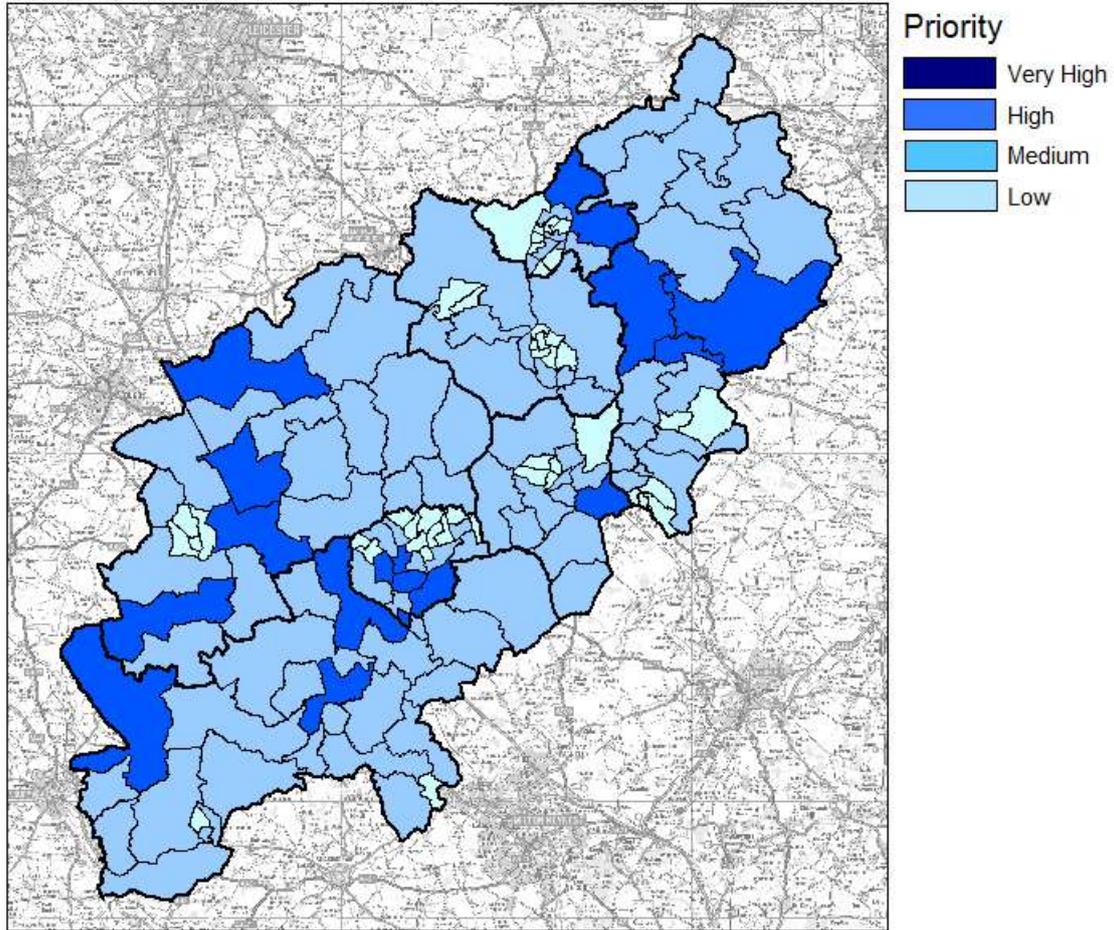


Table A 9 Results of Priority Assessment for Fluvial Flood Zone 3

Priority	Ward Name	District/ Borough
1	Barnwell Ward	East Northants
2	Lyveden Ward	East Northants
3	Castle Ward	Northampton
	Thrapston Lakes Ward	East Northants
5	Danvers and Wardoun Ward	South Northants
	Delapre Ward	Northampton
	Yelvertoft Ward	Daventry
8	Flore Ward	Daventry
	Irchester Ward	Wellingborough
	Long Buckby Ward	Daventry
	Nene Valley Ward	Northampton
	Weldon and Gretton Ward	Corby
13	Byfield Ward	Daventry
	Harpole and Grange Ward	South Northants
	St. James Ward	Northampton
	Towcester Mill Ward	South Northants
17	Astwell Ward	South Northants
	Brafield and Yardley Ward	South Northants
	Castle Ward	Wellingborough
	Clipston Ward	Daventry
	Lower Nene Ward	East Northants
	Oundle Ward	East Northants
	Prebendal Ward	East Northants
	Spencer Ward	Northampton

Priority	Ward Name	District/ Borough	
17	Thrapston Market Ward	East Northants	
	Weedon Ward	Daventry	
	West Hunsbury Ward	Northampton	
	Wollaston Ward	Wellingborough	
	Woodford Ward	East Northants	
	Woodford Ward	Daventry	
31	Billing Ward	Northampton	
	Brixworth Ward	Daventry	
	Danesholme Ward	Corby	
	Kings Sutton Ward	South Northants	
	Little Brook Ward	South Northants	
	Queen Eleanor and Buccleuch Ward	Kettering	
	Rushden Spencer Ward	East Northants	
	St. Crispin Ward	Northampton	
	Welland Ward	Kettering	
	West Ward	Wellingborough	
41	Barby and Kilsby Ward	Daventry	
	Blakesley and Cote Ward	South Northants	
	Brackley East Ward	South Northants	
	Central Ward	Corby	
	Crick Ward	Daventry	
	Exeter Ward	Corby	
	Fineshade Ward	East Northants	
	Hemmingwell Ward	Wellingborough	
	Heyfords and Bugbrooke Ward	South Northants	
	King's Forest Ward	East Northants	
	Kingswood Ward	Corby	
	Shire Lodge Ward	Corby	
	Slade Ward	Kettering	
	St. Michael's and Wicksteed Ward	Kettering	
	Stanion and Corby Village Ward	Corby	
	Stanwick Ward	East Northants	
	Washington Ward	South Northants	
	Weston Ward	Northampton	
	59	Barton Ward	Kettering
		Blisworth and Roade Ward	South Northants
Brampton Ward		Daventry	

Priority	Ward Name	District/ Borough	
59	Burton Latimer Ward	Kettering	
	Cosgrove and Grafton Ward	South Northants	
	Earls Barton Ward	Wellingborough	
	Great Doddington and Wilby Ward	Wellingborough	
	Higham Ferrers Chichele Ward	East Northants	
	Lumbertubs Ward	Northampton	
	Moulton Ward	Daventry	
	Ravensthorpe Ward	Daventry	
	St. Peter's Ward	Kettering	
	Swanspool Ward	Wellingborough	
	Tove Ward	South Northants	
	73	Brackley South Ward	South Northants
		Braunston Ward	Daventry
Croyland Ward		Wellingborough	
Deanshanger Ward		South Northants	
East Hunsbury Ward		Northampton	
Hackleton Ward		South Northants	
Irthlingborough Waterloo Ward		East Northants	
Kingthorn Ward		South Northants	
Rothwell Ward		Kettering	
Silverstone Ward		South Northants	
South Ward		Wellingborough	
Spratton Ward		Daventry	
Walgrave Ward		Daventry	
Welford Ward		Daventry	
Whittlewood Ward	South Northants		
88	Badby Ward	Daventry	
	Boughton and Pitsford Ward	Daventry	
	Grange Park Ward	South Northants	
	Higham Ferrers Lancaster Ward	East Northants	
	Irthlingborough John Pyel Ward	East Northants	
	Kingsthorpe Ward	Northampton	
	Middleton Cheney Ward	South Northants	
	North Ward	Wellingborough	
	Salcey Ward	South Northants	
	Steane Ward	South Northants	
	Towcester Brook Ward	South Northants	

Priority	Ward Name	District/ Borough
88	West Haddon and Guilsborough Ward	Daventry
100	East Ward	Corby
	Ecton Brook Ward	Northampton
	Rowlett Ward	Corby
	Rural West Ward	Corby
	Thorplands Ward	Northampton
105	Avondale Grange Ward	Kettering
	Desborough St. Giles Ward	Kettering
	Finedon Ward	Wellingborough
	Lodge Park Ward	Corby
	New Duston Ward	Northampton
	Northfield Ward	Kettering
	Oakley Vale Ward	Corby
	Raunds Saxon Ward	East Northants
Rushden Sartoris Ward	East Northants	
114	Brambleside Ward	Kettering
	Hill Ward	Daventry
	Ise Lodge Ward	Kettering
	Pipers Hill Ward	Kettering
118	Abbey North Ward	Daventry
	Abbey South Ward	Daventry
	Abington Ward	Northampton
	All Saints Ward	Kettering

Priority	Ward Name	District/ Borough
118	Beanfield Ward	Corby
	Boughton Green Ward	Northampton
	Brackley West Ward	South Northants
	Brickhill Ward	Wellingborough
	Desborough Loatland Ward	Kettering
	Drayton Ward	Daventry
	Eastfield Ward	Northampton
	Great Oakley Ward	Corby
	Headlands Ward	Northampton
	Kingsley Ward	Northampton
	Old Duston Ward	Northampton
	Old Stratford Ward	South Northants
	Parklands Ward	Northampton
	Queensway Ward	Wellingborough
	Raunds Windmill Ward	East Northants
	Redwell East Ward	Wellingborough
	Redwell West Ward	Wellingborough
	Rushden Bates Ward	East Northants
	Rushden Hayden Ward	East Northants
	Rushden Pemberton Ward	East Northants
	St. David Ward	Northampton
	Tower Hill Ward	Corby
	William Knibb Ward	Kettering

## Areas Benefiting from Defences

Map A 21: Priority Assessment for Areas Benefiting from Defences

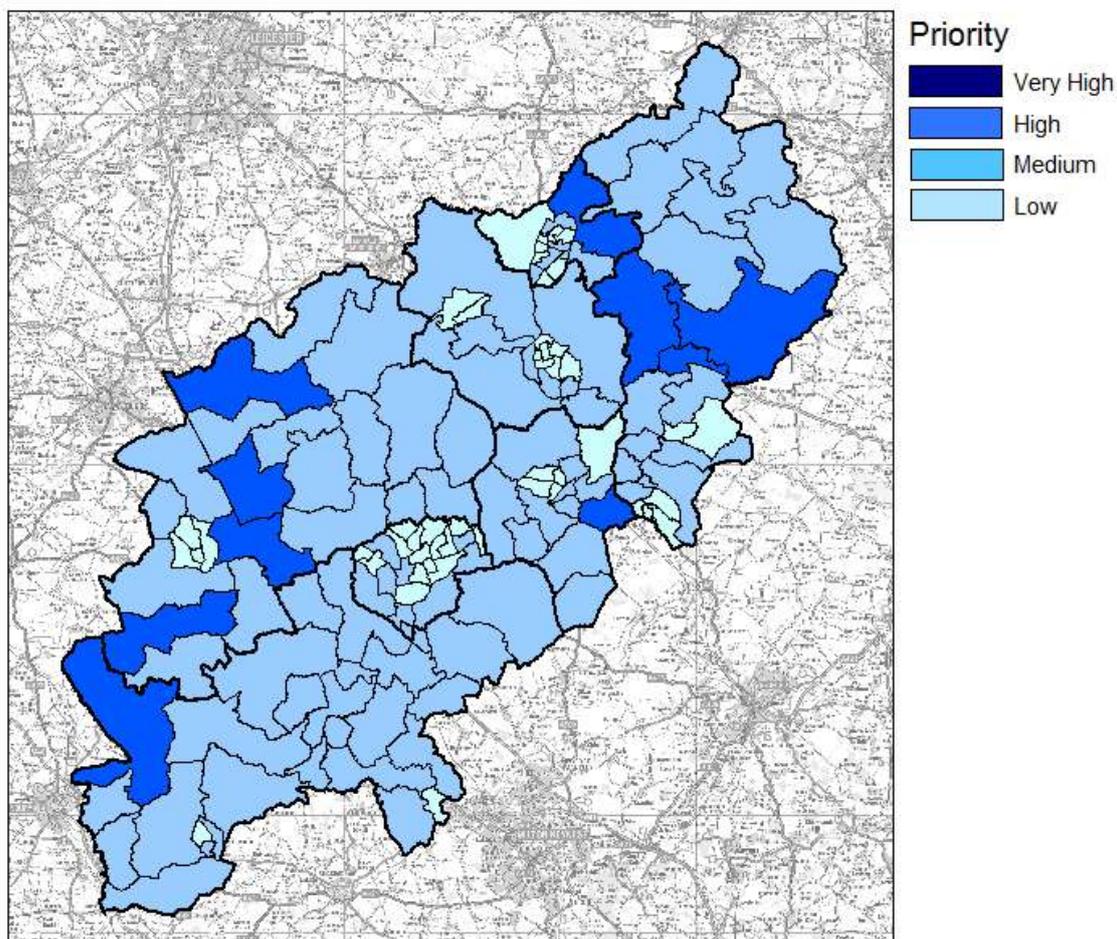


Table A 10 Results of Priority Assessment for Areas Benefiting from Defences

Priority	Ward Name	District/ Borough
1	Barnwell Ward	East Northants
2	Lyveden Ward	East Northants
3	Thrapston Lakes Ward	East Northants
4	Danvers and Wardoun Ward	South Northants
	Yelvertoft Ward	Daventry
6	Flore Ward	Daventry
	Irchester Ward	Wellingborough
	Long Buckby Ward	Daventry
	Weldon and Gretton Ward	Corby
10	Byfield Ward	Daventry
11	Astwell Ward	South Northants
	Brafield and Yardley Ward	South Northants
	Castle Ward	Wellingborough
11	Clipston Ward	Daventry
	Lower Nene Ward	East Northants
	Oundle Ward	East Northants
	Prebendal Ward	East Northants
	Spencer Ward	Northampton
	Thrapston Market Ward	East Northants
	Wollaston Ward	Wellingborough
Woodford Ward	East Northants	
23	Woodford Ward	Daventry
	Billing Ward	Northampton
	Brixworth Ward	Daventry
	Danesholme Ward	Corby
	Harpole and Grange Ward	South Northants

Priority	Ward Name	District/ Borough	
23	Kings Sutton Ward	South Northants	
	Little Brook Ward	South Northants	
	Queen Eleanor and Buccleuch Ward	Kettering	
	Rushden Spencer Ward	East Northants	
	Welland Ward	Kettering	
	West Ward	Wellingborough	
33	Barby and Kilsby Ward	Daventry	
	Blakesley and Cote Ward	South Northants	
	Brackley East Ward	South Northants	
	Central Ward	Corby	
	Crick Ward	Daventry	
	Exeter Ward	Corby	
	Fineshade Ward	East Northants	
	Hemmingwell Ward	Wellingborough	
	King's Forest Ward	East Northants	
	Kingswood Ward	Corby	
	Nene Valley Ward	Northampton	
	Shire Lodge Ward	Corby	
	Slade Ward	Kettering	
	St. Michael's and Wicksteed Ward	Kettering	
	Stanion and Corby Village Ward	Corby	
	Stanwick Ward	East Northants	
	Towcester Mill Ward	South Northants	
	Washington Ward	South Northants	
	51	Barton Ward	Kettering
		Blisworth and Roade Ward	South Northants
Brampton Ward		Daventry	
Burton Latimer Ward		Kettering	
Cosgrove and Grafton Ward		South Northants	
Earls Barton Ward		Wellingborough	
Great Doddington and Wilby Ward		Wellingborough	
Higham Ferrers Chichele Ward		East Northants	
Lumbertubs Ward		Northampton	
Moulton Ward		Daventry	
Ravensthorpe Ward		Daventry	
St. Peter's Ward		Kettering	
Swanspool Ward		Wellingborough	

Priority	Ward Name	District/ Borough
51	Tove Ward	South Northants
	Weedon Ward	Daventry
	West Hunsbury Ward	Northampton
67	Brackley South Ward	South Northants
	Braunston Ward	Daventry
	Castle Ward	Northampton
	Croyland Ward	Wellingborough
	Deanshanger Ward	South Northants
	East Hunsbury Ward	Northampton
	Hackleton Ward	South Northants
	Heyfords and Bugbrooke Ward	South Northants
	Irthlingborough Waterloo Ward	East Northants
	Kingthorn Ward	South Northants
	Rothwell Ward	Kettering
	Silverstone Ward	South Northants
	South Ward	Wellingborough
	Spratton Ward	Daventry
	Walgrave Ward	Daventry
	Welford Ward	Daventry
	Whittlewood Ward	South Northants
84	Badby Ward	Daventry
	Boughton and Pitsford Ward	Daventry
	Grange Park Ward	South Northants
	Higham Ferrers Lancaster Ward	East Northants
	Irthlingborough John Pyel Ward	East Northants
	Middleton Cheney Ward	South Northants
	North Ward	Wellingborough
	Salcey Ward	South Northants
	St. James Ward	Northampton
	Steane Ward	South Northants
	Towcester Brook Ward	South Northants
West Haddon and Guilsborough Ward	Daventry	
96	East Ward	Corby
	Ecton Brook Ward	Northampton
	Rowlett Ward	Corby
	Rural West Ward	Corby
	Thorplands Ward	Northampton

Priority	Ward Name	District/ Borough
101	Avondale Grange Ward	Kettering
	Desborough St. Giles Ward	Kettering
	Finedon Ward	Wellingborough
	Lodge Park Ward	Corby
	New Duston Ward	Northampton
	Northfield Ward	Kettering
	Oakley Vale Ward	Corby
	Raunds Saxon Ward	East Northants
	Rushden Sartoris Ward	East Northants
110	Brambleside Ward	Kettering
	Hill Ward	Daventry
	Ise Lodge Ward	Kettering
	Kingsthorpe Ward	Northampton
	Pipers Hill Ward	Kettering
	St. Crispin Ward	Northampton
116	Abbey North Ward	Daventry
	Abbey South Ward	Daventry
	Abington Ward	Northampton
	All Saints Ward	Kettering
	Beanfield Ward	Corby
	Boughton Green Ward	Northampton
	Brackley West Ward	South Northants

Priority	Ward Name	District/ Borough
116	Brickhill Ward	Wellingborough
	Delapre Ward	Northampton
	Desborough Loatland Ward	Kettering
	Drayton Ward	Daventry
	Eastfield Ward	Northampton
	Great Oakley Ward	Corby
	Headlands Ward	Northampton
	Kingsley Ward	Northampton
	Old Duston Ward	Northampton
	Old Stratford Ward	South Northants
	Parklands Ward	Northampton
	Queensway Ward	Wellingborough
	Raunds Windmill Ward	East Northants
	Redwell East Ward	Wellingborough
	Redwell West Ward	Wellingborough
	Rushden Bates Ward	East Northants
	Rushden Hayden Ward	East Northants
	Rushden Pemberton Ward	East Northants
	St. David Ward	Northampton
	Tower Hill Ward	Corby
	Weston Ward	Northampton
	William Knibb Ward	Kettering

## Impact of Climate Change on Flood Risk

There is clear scientific evidence that global climate change is happening now. It cannot be ignored. Over the past century around the United Kingdom we have seen sea level rise and more of our winter rain falling in intense wet spells. Seasonal rainfall is highly variable. Some of the changes might reflect natural variation however the broad trends are in line with projections from climate models.

Greenhouse gas (GHG) levels in the atmosphere are likely to cause higher winter rainfall in future. Past GHG emissions mean some climate change is inevitable in the next 20 to 30 years. Lower emissions could reduce the amount of climate change further into the future, but changes are still projected at least as far ahead as the 2080s.

There is enough confidence in large scale climate change models to say that the county must plan for change. There is more uncertainty at a local scale but model results can still help us plan to adapt. For example it is understood that rain storms may become more intense, even if there is uncertainty about exactly where or when. By the 2080s, the latest [United Kingdom climate projections \(UKCP09\)](#) are that there could be around three times as many days in winter with heavy rainfall (defined as more than 25mm in a day). It is plausible that the amount of rain in extreme storms (with a 1 in 5 annual chance or rarer) could increase locally by 40%.

If emissions follow a medium future scenario, UKCP09 projected changes by the 2050s relative to the recent past, for each River Basin District are:

**Table A 11 Climate Change Scenarios by Region**

River Basin District	Increase in winter precipitation	Increase in precipitation on the wettest day in winter	Increase in relative sea level from 1990 levels (not including extra potential rises from polar ice sheet loss)	Increase in peak river flows in a typical catchment
Anglian	around 14% (very likely to be between 3 and 31%)	around 14% (very unlikely to be more than 29%)	between 10 and 41cm	between 8 and 16%
Thames	around 15% (very likely to be between 2 and 32%)	around 15% (very unlikely to be more than 31%)	between 10 and 40cm	between 8 and 18%
Severn	around 12% (very likely to be between 2 and 26%)	around 9% (very unlikely to be more than 22%)	between 10 and 40cm	between 9 and 18%

## Implications for Flood Risk

Climate change can affect local flood risk in several ways. Impacts will depend on local conditions and vulnerability.

Wetter winters and more of this rain falling in wet spells may increase river flooding. More intense rainfall causes more surface runoff, increasing localised flooding and causing erosion. In turn, this may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers, so we need to be prepared for the unexpected.

## Adapting to Change

Past emission means some climate change is inevitable. It is essential we respond by planning ahead. We can prepare by understanding our current and future vulnerability to flooding, developing plans for increased resilience and building the capacity to adapt. Regular review of and adherence to this Strategy is key to achieving long-term, sustainable benefits.

### Analysis of Sensitivity to Climate Change

It is important to assess the impacts of climate change on local flood risk, in order to understand the future risks and to identify those areas of the county which are likely to be most sensitive to increased flood risk. Undertaking new hydraulic modelling of flood risk to assess the impacts of climate change is beyond the scope of this Strategy. Therefore a simple analysis has been undertaken using existing data and tools, to support existing plans and assessments.

The aim of the assessment is to look at various severities of present-day flood events and compare how the consequences vary. This can be used to identify areas where local flood risk may be most sensitive to possible changes in flood risk without modelling climate change impacts explicitly. The assessment followed the mapping-based analysis described above.

To determine sensitivity to changes in surface water, the impact scores for the Flood Map for Surface Water 1 in 30 scenario were compared to the impact scores for the Flood Map for Surface Water 1 in 200 scenario. The wards with the greatest differences between the two scenarios are those most likely to be sensitive to heavier storms as a result of climate change.

The same comparison was undertaken between the Flood Zone 3 and Flood Zone 2 scenarios, to identify those wards which are most likely to be sensitive to higher fluvial flows as a result of climate change. It should be noted that, in using the Environment Agency's flood map, this assessment includes both main river and ordinary watercourses. Specific work may have been undertaken to assess the impact of climate change on critical areas of main river in more detail, but the Environment Agency's flood map is the only source of data available on risk of flooding from ordinary watercourses and therefore has been used for this assessment.

Those wards with an increase in average score of 1 or greater are considered to be highly sensitive to climate change. Those wards with an increase in average score of between 0 and 1 are considered to be classed as moderately sensitive to climate change.

The following wards, in order of priority, were classed as **highly sensitive to climate change** under the Flood Map for Surface Water scenarios:

**Table A 12 Wards Highly Sensitive to Climate Change Impacts on Surface Water Flood Risk**

Priority	Ward	District
1	St. James Ward	Northampton
2	Abington Ward	Northampton
3	East Hunsbury Ward	Northampton
	Spencer Ward	Northampton
	St. Crispin Ward	Northampton
6	Eastfield Ward	Northampton
7	Rushden Hayden Ward	East Northants
8	Abbey South Ward	Daventry
9	Brackley West Ward	South Northants
	Desborough St. Giles Ward	Kettering
	West Hunsbury Ward	Northampton
12	St. Michael's and Wicksteed Ward	Kettering
13	Ecton Brook Ward	Northampton
	Irthlingborough Waterloo Ward	East Northants

Priority	Ward	District
	Stanwick Ward	East Northants

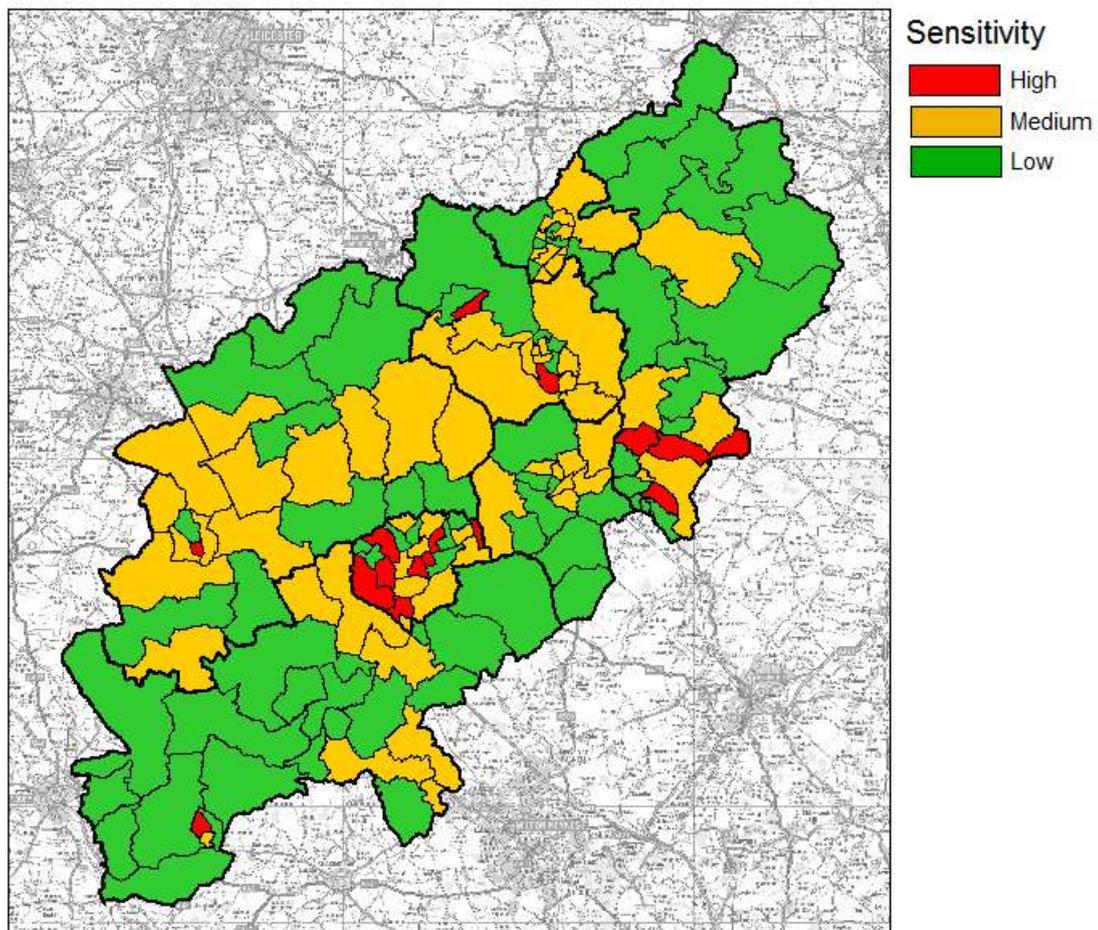
The following wards, in order of priority, were classed as highly sensitive to climate change under the Environment Agency’s fluvial flood map scenarios, which include both main river and ordinary watercourses:

**Table A 13 Wards Highly Sensitive to Climate Change Impacts on Fluvial Flood Risk**

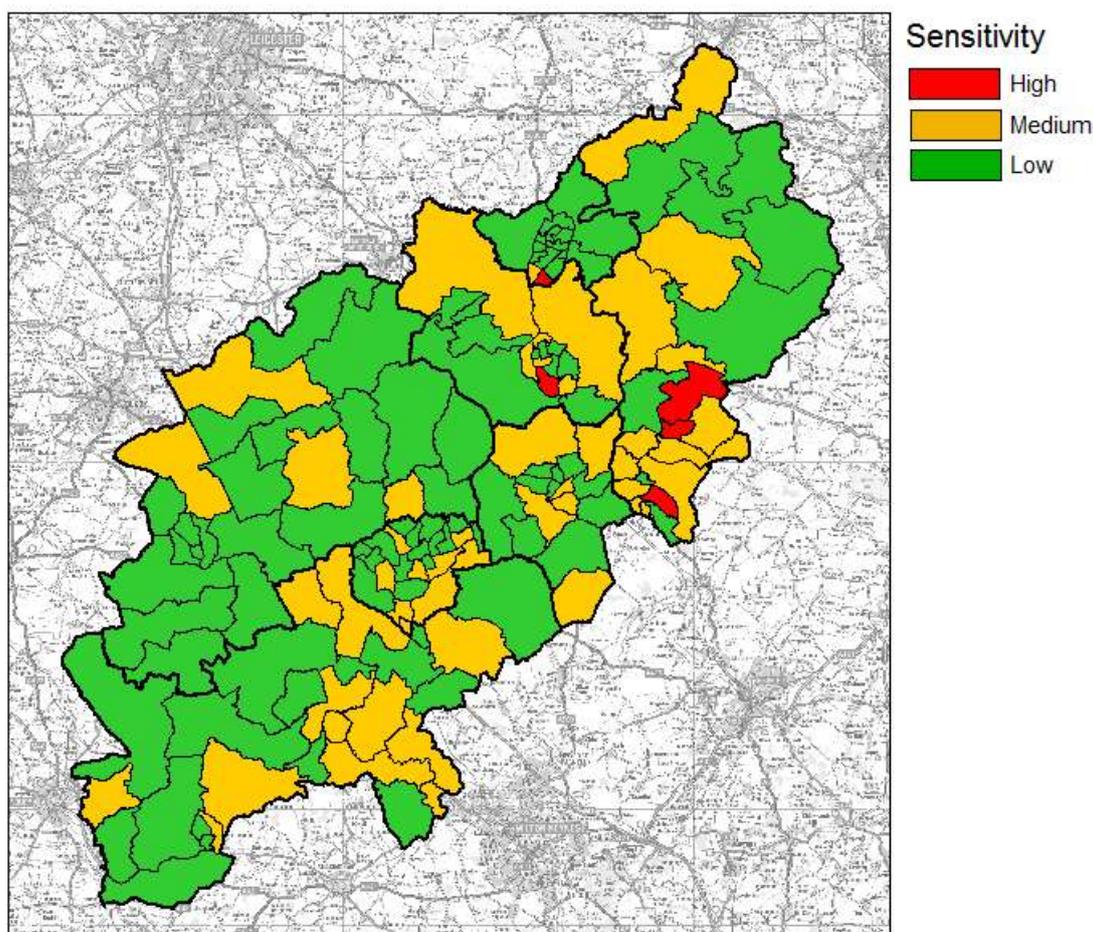
Priority	Ward	District
1	Thrapston Market Ward	East Northants
2	Great Oakley Ward	Corby
	Raunds Windmill Ward	East Northants
	Rushden Hayden Ward	East Northants
	St. Michael’s and Wicksteed Ward	Kettering

[Map A22](#) below shows the sensitivity of the wards to climate change impacts on surface water, and [Map A23](#) below shows the sensitivity of wards to climate change impacts on fluvial flood risk from both main river and ordinary watercourses.

**Map A 22: Susceptibility to Climate Change Impacts on Surface Water Flood Risk**



**Map A 23: Susceptibility to Climate Change Impacts on Fluvial Flood Risk**



### *Limitations of data*

The assessment of flood risk within Northamptonshire has been completed using the best information that is currently available. However, there are inherent limitations that come with using this information and it is important that these are identified. [Table A14](#) below lists the main limitations to the data used and possible future improvements that could be made to enhance the understanding of flood risk across Northamptonshire.

**Table A 14 Limitations of main datasets used to prioritise locally important flood risk areas**

<b>Dataset</b>	<b>Main limitations</b>	<b>Future improvement</b>
Flood Map for Surface Water	Modelling used a national methodology with a standard set of assumptions (such as storm duration, sewer loss allowance, etc) which may not be suitable for the whole of Northamptonshire.	Detailed surface water modelling within locally important flood risk areas will provide a better understanding of flood risk, mechanisms and consequences.
Fluvial Flood Map	Shows potential flood risk from both main river and ordinary watercourses	Separating main river and ordinary watercourse data to provide a more relevant suite of information.
Areas Susceptible to Groundwater Flooding	This is a very high level dataset describing the proportion of each grid square that may be susceptible to groundwater flooding. It does not show the likelihood of groundwater flooding occurring.	Obtain the complete British Geological Survey (BGS) dataset for key areas, which provides a more accurate overview of areas where geological conditions suggest groundwater might emerge.

<p>Flood history across Northamptonshire</p>	<p>Flood history collected as part of the Preliminary Flood Risk Assessment is generally inconsistent as it is very dependent on memories of flood events, which are not always exact. It is difficult to make a fair and accurate assessment of flood risk across Northamptonshire based on this alone.</p>	<p>More comprehensive flood recording and flood investigation in the future is essential (this is currently underway, as a requirement of the Act and will provide a better level of flood history in the future).</p>
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## **APPENDIX 6: RIVER BASIN MANAGEMENT PLANS, WATER FRAMEWORK DIRECTIVE AND CATCHMENT FLOOD MANAGEMENT PLANS**

### **Water Framework Directive and River Basin Management Plans**

Flood Risk Management activities are, like any other activities, subject to European Directives. [The Water Framework Directive \(WFD\)](#) requires local flood risk management strategies to take account of River Basin Management Plans (RBMPs). RBMPs are plans for protecting and improving the water environment and have been developed in consultation with organisations and individuals. They contain the main issues for the water environment and the actions we all need to take to address them. Northamptonshire is covered by three river basin districts, namely Anglian, Severn and Thames. The RBMP reports can be found on the Environment Agency's website at <http://www.environment-agency.gov.uk/research/planning/148254.aspx>.

'Flood protection' is recognised in the WFD as one of the activities that may mean that the default target of 'Good Ecological Status' (GES) may not be achieved. The legacy of human intervention can often be great so that the necessary actions to achieve GES would be technically unfeasible or disproportionately costly to deliver.

An initial assessment has been undertaken at a strategic level to test the compliance of the Northamptonshire Local Flood Risk Management Strategy (LFRMS) with the requirements of the directive to ensure that the measure proposed do not cause deterioration to water bodies or prevent future improvements. The contents of this Strategy relates primarily to Article 4 of the directive, which outlines the environmental objectives:

- All surface water bodies to achieve good ecological and chemical status by 2015. This covers inland waters, transitional waters (estuaries) and coastal waters.
- All groundwater bodies to achieve good groundwater quantitative and chemical status by 2015.
- Heavily-modified water bodies and artificial water bodies to achieve good ecological potential and good surface water chemical status by 2015.
- No water bodies to experience deterioration in status from one class to another.
- Protected Areas to achieve the requirements made under their designation in relation to the water environment.

New schemes that affect the water environment may impact the biological, hydromorphological, physio-chemical and/or chemical quality elements of a watercourse. Any of these impacts could lead to deterioration and/or improvements to water bodies; therefore a preliminary assessment is required which should have regard to all of these matters. The Local Planning Authority as decision maker on these planning applications will likely secure via a condition(s) any measures identified that are required to achieve WFD requirements.

When the Project Appraisal for flood risk management projects, schemes and initiatives are undertaken, they will be expected to take account of the WFD, as all schemes, projects and measures will be subject to tests for WFD compliance at design stage and will need to demonstrate that proposals meet with the requirements of the Directive.

The LFRMS will be regularly reviewed and updated every three years. Further plans and individual schemes will be developed using latest available guidance, so ensuring flexibility is maintained in implementing compliance options in future.

### **Water Framework Directive and the Local Flood Risk Management Strategy**

The fundamental objective of the LFRMS which relates to WFD is Objective 3 to:

*'Adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits (water quality, climate change adaptation, habitat creation etc) and promote the social wellbeing of local people'.*

The LFRMS sets out long-term policy aims for sustainable flood risk management and considers the need to work with nature, as far as possible, and contribute to environmental improvement. Moreover, as the County Council progresses with the implementation of the

action plan, the delivery of measures, which actively contribute to achieving the overall aims of the WFD, can be ensured.

**Table A 15 Water Framework Directive Compliance check**

Article	Explanation	Evidence
4.1.a(i)	This article requires implementation of necessary measures to prevent deterioration of status of all surface water bodies.	The LFRMS presents policies for the long-term management of flood risk and operates at a strategic level. Prior to physical flood alleviation works being undertaken to implement the LFRMS objectives, further assessment and appraisal will consider the implication of achieving GES and on preventing deterioration. The objectives within the LFRMS need to be considered against the National Strategy objectives. Presence of flood defences, or other flood risk management activities, may result in continued or increased deterioration in ecological status, or the modification of water bodies. Conversely, flood risk management activities may result in the protection, enhancement and restoration of the ecological status of water bodies through, for example, enabling greater floodplain connectivity, reducing detrimental erosion and sedimentation, and reducing polluted run-off from land. These considerations will need to be reviewed and evaluated at design stage of specific schemes as actions are progressed or implemented.
4.1.a(ii)	This article requires protection, enhancement and restoration of all surface water bodies, other artificial and heavily modified water bodies with the aim of achieving good ecological status.	
4.1.a(iii)	This article requires protection and enhancement of artificial and heavily modified water bodies with aim of achieving good ecological potential (GEP) and good surface water status.	
4.1a(iv)	This article requires the implementation of measures to reduce pollution from priority substances and ceasing or phasing out emissions, discharges and losses of priority hazardous substances. FRM works should not compromise delivery of these.	

Article	Explanation	Evidence
4.1.b(i)	This article requires the implementation of measures to prevent or limit inputs of pollutants to groundwater, and to prevent the deterioration of status of groundwater bodies. FRM works should not compromise delivery of these.	The LFRMS will consider groundwater flooding. These impacts will routinely be assessed on a case-by-case basis. Specific measures to reduce the risk of pollution to groundwater are beyond the remit of the LFRMS. Land management methods such as Catchment Sensitive Farming, which reduce the risk of pollution of groundwater, are being promoted by the LFRMS.
4.1(c) and 4.2	Protected areas shall achieve compliance with the WFD objectives by 2015, unless otherwise specified in other legislation such as Habitats and Birds Directives.	For areas designated under the Habitats and Birds Directives, the LFRMS has satisfied the tests through habitats regulations assessment. Any future works will be subject to more detailed assessment.
4.4	This article allows for an extension of deadlines to achieve objectives, subject to conditions (relating to technical feasibility, cost and natural conditions).	<p>The LFRMS could help deliver WFD requirements through ongoing implementation of good practice in construction and maintenance activities.</p> <p>Any future works will be subject to more detailed assessment and appraisal. The implementation of the LFRMS is sufficiently flexible to adapt to different scenarios.</p>
4.5	This article allows for water bodies to be set less stringent environmental objectives where human activity requires it for reasons relating to technical feasibility and cost. There are conditions and a requirement to ensure that the benefits brought by the human activity can not be achieved by any other means that are not disproportionately costly.	The LFRMS itself will not increase the risk as it is not leading to major increases in morphological pressure and neither is it compromising delivery of expected mitigation measures, which may be used to define GES. Any further works emanating from the LFRMS will be subject to more detailed assessment and appraisal, at which time the technical feasibility and cost of those proposals will be considered, alongside the need to achieve the environmental objectives set in the River Basin Management Plans (RBMPs).
4.6	Temporary deterioration in the status of water bodies shall not be a breach of requirements of the WFD. If this is the result of natural causes, which are exceptional and could not reasonably have been foreseen, such as extreme floods and prolonged droughts, are permitted. Conditions include the need to take practical steps to prevent further damage.	<p>The effects of flooding on the environment (for example flooding of industrial premises leading to contamination of water) will be minimised where possible by the provision of warnings, and actions of emergency planning teams. The LFRMS establishes the policy intent for long term management of flood risk, which will see decreased risk in some areas and increases over time in others. As the County Council progressively prioritises resources and the need for and impact of its activities, it will actively plan to assess the environmental impact of future works.</p> <p>Emergency works may be required after an extreme flood event and where feasible, will have regard to WFD objectives.</p>

Article	Explanation	Evidence
4.7	<p>Failure to achieve GES is not a breach of the WFD if it is the result of new modifications to physical characteristics of the water body and the following conditions are met:</p> <p>All practical mitigation is undertaken.</p> <p>There is overriding public interest and/or the benefits for human health or safety or for sustainable human development outweigh the benefits to the environment and society of achieving WFD objectives.</p> <p>The beneficial objectives served by the modifications – in this case flood risk management – can not for reasons of technical feasibility or disproportionate cost be achieved in a more environmentally sensitive way.</p>	<p>The LFRMS presents policies for the long-term management of flood risk and operates at strategic level. Prior to physical works being undertaken to implement the LFRMS objectives, further assessment and appraisal will consider the implication on achieving GES.</p> <p>Individual schemes could affect the physicochemical and hydromorphological status of a water body. This will need to be assessed on a case-by-case basis as and when further details of schemes are developed and appraised.</p> <p>The appraisal techniques used will be sufficiently robust to ensure the human health and societal benefits in providing flood risk management are balanced with the impacts on the environment, and that alternative approaches are also considered.</p> <p>The LFRMS is sufficiently flexible to adapt to future requirements.</p>

The examination of the current state of understanding of the WFD and the nature of the LFRMS suggests that the plan is compliant with the requirements of the Directive and actively highlights opportunities for improvements to meet WFD objectives and improve ecological status. It highlights the need for further examination at future stages of site-specific scheme/project development and appraisal, which should be addressed by good practice in detailed appraisal. The LFRMS provides a sufficiently flexible approach to ensure that this is achieved.

### Catchment Flood Management Plans

The Environment Agency has developed Catchment Flood Management Plans (CFMPs) across the country within each main river catchment, with the aim of taking a broad view of flood risk at catchment level over the next 100 years. CFMPs help the Environment Agency to understand the scale and extent of flooding now and in the future and set policies for managing flood risk within the catchment. CFMPs are used to inform planning and decision making by key stakeholders. Factors such as climate change, future development and changes in land use and land management were taken into account in developing sustainable policies for managing flood risk in the future.

Northamptonshire is covered by four different Catchment Flood Management Plans, namely the 'River Nene' (64% of Northamptonshire), the 'Great Ouse' (14% of Northamptonshire), the 'Thames' (8% of Northamptonshire), the 'River Severn' (7% of Northamptonshire) and the 'River Welland' (7% of Northamptonshire). Full summary reports detailing the policies that the Environment Agency plans to implement in each of these catchments can be found through the Environment Agency website at <http://www.environment-agency.gov.uk/research/planning/33586.aspx>.

Each catchment has been broken down into smaller areas to which specific policies for future flood risk management are applied. There are six policies as shown in [Table A16](#) below. [Map A24](#) shows where these policies apply within Northamptonshire. There are no areas covered by Policy 1, and Policy 2 is most common within the county.

The objectives and actions of the LFRMS have been assessed against the CFMP policies to demonstrate compliance on a holistic level. It should be noted that, although the CFMP considers flooding from all sources, the main focus of the CFMP is on flood risk from main

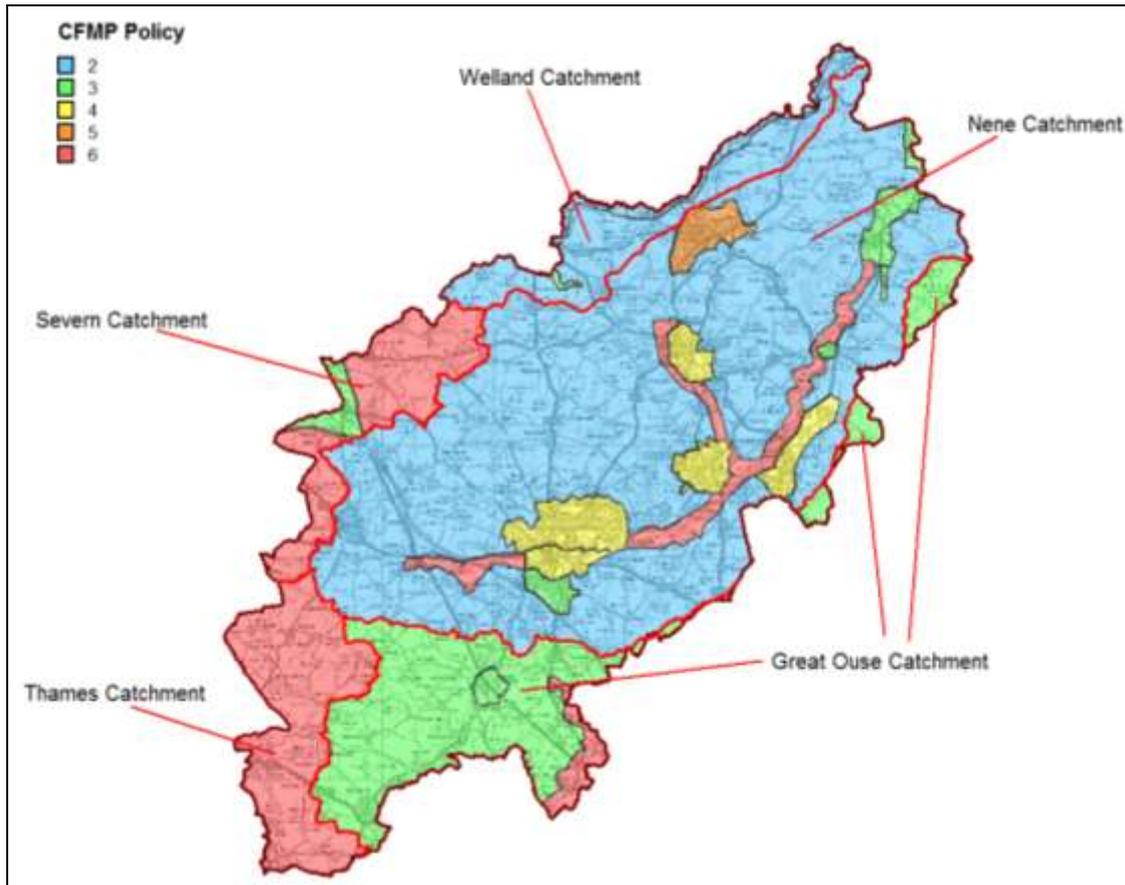
ivers. Therefore the prioritisation of flood risk management works in the CFMP focuses on areas at significant risk from main rivers. In contrast, the LFRMS prioritisation assessment has considered flood risk from surface water, groundwater and fluvial sources, and therefore promotes flood risk management in some areas which are not at significant risk of flooding from main rivers. However in no circumstances does the LFRMS propose to reduce flood risk management actions in areas at risk of flooding from main rivers.

**Table A 16 CFMP Policy Compliance**

<b>CFMP Policy</b>	<b>CFMP Policy Outline</b>	<b>CFMP Policy Detail</b>	<b>LFRMS Compliance with CFMP Policy</b>
Policy 1	Areas of little or no flood risk where we will continue to monitor and advise	This policy will tend to be applied in those areas where there are very few properties at risk of flooding. It reflects a commitment to work with the natural flood processes as far as possible.	Under Objective 4 we will improve public awareness and understanding of flooding. We will also investigate flood incidents which occur and meet the thresholds set. Under Objective 3 we promote the use of natural methods for managing flood risk, such as tree planting and natural resilience.
Policy 2	Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions	This policy will tend to be applied where the overall level of risk to people and property is low to moderate. It may no longer be value for money to focus on continuing current levels of maintenance of existing defences if the Environment Agency can use resources to reduce risk where there are more people at higher risk. The Environment Agency would therefore review the flood risk management actions being taken so that they are proportionate to the level of risk.	There are no areas within Northamptonshire where the LFRMS proposes to reduce existing flood risk management actions. However currently all works undertaken by the County Council are prioritised on a risk-based approach and therefore are not generally undertaken in areas where there is no risk.
Policy 3	Areas of low to moderate flood risk where we are generally managing existing flood risk effectively	This policy will tend to be applied where the risks are currently appropriately managed and where the risk of flooding is not expected to increase significantly in the future. However, the Environment Agency keep their approach under review, looking for improvements and responding to new challenges or information as they emerge. The Environment Agency may review their approach to managing flood defences and other flood risk management actions, to ensure that they are managing efficiently and taking the best approach to managing flood risk in the longer term.	The LFRMS sets out actions for improving the effectiveness of flood risk management across the County. It is not proposed to increase management where it is not required, nor is it proposed to reduce management where there is a demonstrated risk of flooding.

CFMP Policy	CFMP Policy Outline	CFMP Policy Detail	LFRMS Compliance with CFMP Policy
Policy 4	Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change	This policy will tend to be applied where the risks are currently deemed to be appropriately-managed, but where the risk of flooding is expected to significantly rise in the future. In this case the Environment Agency would need to do more in the future to contain what would otherwise be increasing risk. Taking further action to reduce risk will require further appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.	The prioritisation assessment in Section 6 of the LFRMS reviewed the sensitivity of areas to the potential impacts of climate change. A number of actions are also proposed within the LFRMS to increase understanding of the flood risk and the impacts of climate change within the County. This will identify areas where further actions may be required to manage this increasing risk. Investigations into flood incidents which occur should also highlight areas where increased management is required.
Policy 5	Areas of moderate to high flood risk where we can generally take further action to reduce flood risk	This policy will tend to be applied to those areas where the case for further action to reduce flood risk is most compelling, for example where there are many people at high risk, or where changes in the environment have already increased risk. Taking further action to reduce risk will require additional appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.	The prioritisation assessment in Section 6 of the LFRMS has determined those areas which are considered to be at highest risk of flooding from a range of sources. In these areas, proactive actions are proposed to manage and reduce these risks where resources allow.
Policy 6	Areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits	This policy will tend to be applied where there may be opportunities in some locations to reduce flood risk locally or more widely in a catchment by storing water or managing run-off. The policy has been applied to an area (where the potential to apply the policy exists), but would only be implemented in specific locations within the area, after more detailed appraisal and consultation.	A number of actions have been proposed within the LFRMS to promote the strategic management of flood risk, such as improved land management methods, strategic flood storage areas, and promotion of SuDS in development. In all work undertaken, opportunities for wider benefits, including environmental improvement, will be sought.

Map A 24: CFMP Policy Units



The guiding principle of CFMPs is a catchment based approach to working. Although this Strategy focuses on local flood risk within the boundary of Northamptonshire, all of the objectives and actions within the Strategy must be appropriate on a catchment scale. As outlined in [Section 5.25](#) of this Strategy, cross-catchment working is undertaken in all aspects of the LLFAs work to ensure that there is no transfer of risk up or downstream or to other LLFA areas, and that there is no conflict with the policies and working practices of other risk management authorities. The impacts of specific schemes within the Action Plan must be assessed for their potential positive and/or negative impacts on a catchment scale during the design of any scheme, to ensure that there is no transfer of risk elsewhere without prior agreement.

## **APPENDIX 7: FLOOD RISK MANAGEMENT FUNDING MECHANISMS**

It is important to identify what funding mechanisms are available to the County Council to fund the flood risk management measures that have been set out in this Strategy. A summary of different forms and sources of funding is provided below.

### *European Funding*

**LIFE+** initiative is a limited but focused funding programme providing specific support for the implementation of European environmental policy and legislation. The budget for the 2007-2013 period totals €2.143 billion and the programme comprises three strands:

- **LIFE+ Nature and Biodiversity:** supports environmental and nature conservation projects which aim to protect birds and habitats and prevent the loss of biodiversity.
- **LIFE+ Environmental Policy and Governance:** aims to contribute to the implementation, updating and development of European Union environmental policy and legislation, including the integration of the environment into other policies, thereby contributing to sustainable development.
- **LIFE+ Information and Communication:** supports projects which raise awareness of environmental, protection or biodiversity conservation issues. Projects include communication and awareness raising campaigns on environmental issues, which should be linked to the implementation, updating and development of EU environmental policy and legislation.

**INTERREG:** a collection of funds aimed at promoting inter-region cooperation across the EU. These funds focus on delivering the Gothenburg and Lisbon agendas through high quality projects in innovation, the environment, accessibility and sustainable and competitive communities.

**European Fisheries Fund:** primarily aimed at supporting the fishing industry, but will fund actions to protect and develop fish habitats under Axis 3 (funding for developments that will benefit groups, such as those working in the fishing industry).

### *National Funding*

The amount of Government funding put towards flood and coastal erosion risk management projects is limited each year. Under Defra's new partnership funding approach, relatively small amounts of local funding could make the difference between locally-important projects going ahead or not.

Under this approach, some schemes stand to be 100% grant funded by Defra and others partially funded. Defra states that if contributions can be raised from those benefitting from fully-funded schemes, any excess contribution can be retained by the risk management authority involved and used to help pay for lower scoring schemes in the area.

### *Defra Grants*

Defra grants are either allocated directly to authorities to support the introduction of new legislation and practices, or made available for Local Authorities to submit grant applications for funding (such as the Early Action Fund).

Defra expects to spend around £2.16 billion on flooding and coastal erosion over the next three years (this includes funding provided to the Environment Agency), although the exact budgets are still being finalised.

Defra is committed to funding LLFAs to carry out their new responsibilities under the Flood and Water Management Act. Up to £36 million a year will be provided directly to LLFAs and this started at £21 million in 2011/12.

The County Council received £149,900 in 2011/12 and £290,000 in 2012/13 to spend on local flood risk management activities.

### *Flood Defence Grant in Aid*

Defra has the national policy responsibility for flood and coastal erosion risk management and provides funding through grant in aid to the Environment Agency, who then administer grant for capital projects to Local Authorities.

The new approach to funding capital maintenance and defence projects commenced in April 2012. It aims to encourage communities to take more responsibility for the flood risk that they face and aims to deliver more benefit by encouraging total investment to increase beyond the levels that Defra alone can afford. The new approach will see funding levels for each scheme (provided by Defra through Flood Defence Grant in Aid) relating directly to benefits, in terms of the number of households protected, the damages being prevented plus other scheme benefits such as environmental benefits, amenity improvement, agricultural productivity and benefits to business. Local contributions raised towards a project will help release the FDGIA. In addition to these elements, payment rates for protecting households in deprived areas will be higher so that schemes in these areas are more likely to be fully funded by the Government.

Under this system some schemes will receive complete funding, if the benefits significantly outweigh the costs, and for others partial funding would be available. It is hoped that this approach would encourage people to find cheaper ways to achieve positive outcomes and/or find other funding mechanisms to pay the remaining cost of the scheme.

### *The Growing Places Fund*

The Growing Places Fund aims to enable targeted investment in pieces of infrastructure which unlock development, allowing places to realise development and enhance viability.

38 of the Local Enterprise Partnerships are able to apply for the funding and then take decisions about what to prioritise locally. Councils will support these plans with their technical and financial expertise.

The fund can be used to take forward a range of projects that can help facilitate economic growth, jobs and house building in the local area, providing returns which can be re-invested locally. Through this, Local Enterprise Partnerships will be able to offer secure funding to developers in their area, making it quicker for projects to get off the ground but also securing a return on that investment for the local area.

Types of projects include the provision of flood storage capacity to enable development of homes, employment space and retail space.

### *Catchment Restoration Fund*

This is an Environment Agency administered fund open to third sector organisations. The fund aims to restore more natural features in and around waters and reduce the impact of small spread-out (diffuse) sources of pollution that arise from rural and urban land use.

### *Regional Funding*

#### ***Regional Flood and Coastal Committee and Local Levy***

This is an additional locally raised source of income raised by way of levy on local Authorities. The levy is used to support (with the approval of the Regional Flood and Coastal Committee) flood risk management projects that are not considered to be national priorities and hence do not attract national funding through Flood Defence Grant in Aid.

The county is covered by four Regional Flood and Coastal Committees (RFCCs). These are set out in [Table A17](#) below along with the amount of local levy paid to each by the County Council:

**Table A 17 RFCC Areas and Levels of Levy**

<b>Regional Flood and Coastal Committee</b>	<b>Amount of Levy (£) 2011/12</b>	<b>Amount of Levy (£) 2012/13</b>
Anglian Northern	£532, 551	£559,199
Anglian Central	£30, 665	£32,473

Regional Flood and Coastal Committee	Amount of Levy (£) 2011/12	Amount of Levy (£) 2012/13
Thames	£14,140	£14,795
Central (Severn Trent)	£4,337	£4,554
<b>Totals</b>	<b>£581,693</b>	<b>£611,021</b>

### *Northamptonshire Specific Local Sources of Funding*

#### **West Northamptonshire Infrastructure Delivery Plan**

The Infrastructure Delivery Plan (West Northamptonshire Development Corporation and West Northamptonshire Joint Planning Unit - Infrastructure Delivery Plan - Final Report (February 2011) - Halcrow Group Limited and EC Harris) comprises a suite of documents which, together, provide evidence of the impact that the proposed growth for West Northamptonshire will have on its infrastructure up to 2026. Its purpose is to identify the infrastructure needed to deliver development, to provide the phasing, costs and timing for each item of infrastructure identified, and to assess the extent to which this infrastructure may impact on the delivery of development. In addition, it identifies responsibility for delivery, potential funding sources and, importantly, highlights any funding gaps, as well as suggesting ways in which any impacts may be overcome.

The study provides information on four aspects: flood attenuation, water supply, wastewater treatment, and the wastewater network.

Analysis of the Infrastructure Delivery Plan suggests that funding is in place for the majority of items required, and that many are only needed to service new development.

#### **Northamptonshire Strategic Infrastructure Programme**

The development of the strategic infrastructure programme and delivery plan will identify the imminent priorities in detail and will:

- Feed into the Core Spatial Strategies and run to the same timetables;
- Be robust and complete enough to feed into CIL charging schedules that will need to be created by the district and borough councils;
- Run alongside and influence The County Council's capital programme and priorities;
- Identify a list of project priorities which can be used to plan and align funding streams making the best possible use of government grants, 106 (developer) funding and any other opportunities that become available. These schemes will be strategic in nature and hence should equate to £50,000 and above.

The development of a strategic infrastructure programme and delivery plan for the county will identify imminent priorities in detail by summer 2012, and will develop a business case for the new infrastructure programme, making the best use of existing assets.

#### **A Stronger and Greener Economy Initiative**

Northamptonshire Enterprise Partnership will be working with the County Council to explore the role Tax Incremental Finance could play in delivering new infrastructure schemes, including transport projects, which would help to create new jobs.

The localism agenda and financial constraints on the public sector mean that the County Council will need to explore innovative forms of funding for the infrastructure needed to deliver and release economic and housing growth and create new jobs. Whether this is for road improvements, rapid transit, superfast broadband, flood prevention or other infrastructure investment.

#### *Other sources of potential funding*

**Private funding:** an important funding mechanism will come from local fundraising from the local communities and businesses that would benefit from flood defence Schemes.

**Water Company investment:** funds can be raised through the price review process to support investment in water and wastewater infrastructure. This will include action taken to

reduce sewer flooding and increase asset resilience. Water companies are able to invest in some types of surface water management and may be increasingly willing to invest in order to protect their assets and customers.

**Community Infrastructure Levy:** this is a locally agreed sum levied upon developers and large sums could potentially be raised over time. It is flexible in its approach as local authorities can adjust spending plans to meet priorities. It is estimated that the introduction of the levy has the potential to raise around £1 billion a year of funding for local infrastructure by 2016. Local authorities are required to use this funding for infrastructure needed to support the development; it can be used to construct new infrastructure, increase the capacity of existing infrastructure or repair failing existing infrastructure including flood defences.

**Section 106 (Town and Country Planning Act 1990):** this is a contribution from developers, linked to specific developments and the infrastructure required to make them acceptable in planning terms. It can be very specific to the issue being addressed and is negotiated separately for each development. It can be used to pay for defences that specific developments need in order to be safe and so acceptable in planning terms.

One of the recommendations of 'Making Space for Water' was that local planning authorities should make more use of Section 106 agreements to ensure that there is a strong planning policy to manage flood risk. This means that any flood risk which is caused by, or increased by, new development should be resolved and funded by the developer.

**Business Rate Retention:** this looks at the option to enable councils to retain their locally raised business rates. Such an approach could help local councils from their dependency on central government funding and could provide incentives, through the business rates system, for them to promote economic growth.

**New Homes Bonus:** this is a financial incentive to build new housing. It may help fund any additional local infrastructure needed. It should not lead to inappropriate development in areas at flood risk but should be used in cases where a particular development is dependent on flood risk management.

**Communities Fund:** various distributor bodies such as Biffawards, CEMEX, SITA Trust and Wren all seek to fund biodiversity projects located within various distances of their operations (usually 10 miles).

**Big Lottery Fund (Communities Living Sustainably):** this will fund partnerships that bring together the public, private, voluntary and community sectors to build sustainable and resilient communities to help deal with the potential impact of climate change. The programme will invest up to £10,000 to develop a project delivery plan that details the environmental, economic and social challenges affecting the community and how they can be addressed, and will provide grants of between £500,000 and £1 million for up to five years for a range of activities and initiatives within a local community.

## APPENDIX 8: CIVIL CONTINGENCIES AND COMMUNITY RESILIENCE

Defra Ministers have overall responsibility for national level flood emergency planning. The Civil Contingencies Act (2004) places a number of duties on local authorities, the emergency services and other organisations (including the Environment Agency) involved in responding to flooding. The Act lists local authorities, the Environment Agency and emergency services as 'Category 1' responders to emergencies. It places duties on these organisations to:

- Undertake risk assessments;
- Manage business continuity and promote this to local businesses;
- Carry out emergency planning;
- Share information and cooperate with other responders; and
- Warn and advise the public during times of flooding.

Local Resilience Forums (LRFs) bring together Category 1 and Category 2 responders within a local police area, and are responsible for developing multi-agency flood plans. These plans allow all responding parties to work together on an agreed and coordinated response to flooding.

### *Multi Agency Flood Plan*

The Northamptonshire Multi Agency Flood Plan (2012) has been produced on behalf of the Northamptonshire Local Resilience Forum. It has been produced in accordance with the Civil Contingencies Secretariat, Defra and Environment Agency guidance and supersedes the Northamptonshire Multi-Agency Flood Response Plan (2006).

The Northamptonshire MAFP addresses river, coastal and surface water flood risk (as defined in Community Risk Register) and the associated emergency response arrangements. The plan does not include flood risks from foul sewage, burst water mains, canals and private lakes, or reservoir dam failure. The plan is supported by the accompanying document "Northamptonshire Community Flood Risk Summary" which includes details of the areas more susceptible to flooding and the impact this may have.

The plan has been developed to provide a framework that enables responders to provide an effective, coordinated multi-agency response to the threat of/or incidence of flooding in Northamptonshire. The plan:

- Defines the roles and responsibilities of organisations that respond to flooding;
- Documents the planned and coordinated response of these organisations to a flood incident by:
  - Outlining the arrangements that have been put into place to mitigate and minimise the effects of a flooding incident;
  - Identifying other procedures and sources of further information to enable an effective response;
  - Outlining tactical options for the response to likely flood scenarios.
  - Provides brief guidance to support the management of and recovery from incidence of flooding.

The Plan has been prepared as part of a complimentary set of emergency plans. There are a number of plans in existence many of which become relevant when an incident progresses in a particular way. The key plans that would be relevant to a flood event are listed in [Table A18](#) below:

**Table A 18 Key Plans**

Plan	Description
Northamptonshire Local Resilience Forum Major Incident Manual	This document sets out the core arrangements for responding to a major incident in Northamptonshire and all plans, including this one should be consistent with the principles outlined
Northamptonshire Flood Risk Summary	This document contains information and maps relating to the flood risk within Northamptonshire assessed on a ward basis. The information includes impact details and provides substantial information which may support decision making during a flood event

Plan	Description
Northamptonshire Multi-agency media emergency plan	This plan details the arrangements by which the different responder organisations will coordinate efforts in relation to public information and the media, including how the lead agency will be supported in managing media demand
Northamptonshire Local Resilience Forum Recovery Plan	This document contains information and guidance to support the management of the recovery process following an incident
Northamptonshire Local Resilience Forum Evacuation & Shelter Manual	This manual details how to plan and organise the evacuation of an area together with the process for providing a safe location from which to look after people (reception centres)
Environment Agency Northamptonshire Local Flood Warning Plan	This plan contains the procedures that the Environment Agency will use to issue flood warnings to partner agencies

The Plan defines the key actions, roles and responsibilities of all partners before, during and after flood events, as summarised in [Table A19](#) below:

**Table A 19 Actions, Roles and Responsibilities of Partners**

Partner	Actions, roles and responsibilities
Anglian Water	Respond to flood warnings, historical field intelligence, internal telemetry intelligence and customer generated calls, in order to maintain water and wastewater services to their customers. Have site-specific emergency plans for their critical functions
Canal and River Trust	The Trust is a navigation authority, which inspects, maintains and operates the water control structures within its ownership primarily to meet its statutory obligation to maintain navigation. By local agreement, the Trust may provide specific assistance in the event of a flood incident. Typically this would be in consultation with Silver Command and/or the Environment Agency.
District and Borough Councils	Set up a call centre if required. Provide accommodation for those unable to return home. Provide assistance to those remaining at home, in particular vulnerable persons and those without power etc. Repair any Local Authority owned damaged roads. Lead or assist the Recovery Working Group with The County Council
East Midlands Ambulance Service	Assist in the evacuation of vulnerable persons with medical conditions. Provide paramedical and ambulance cover to those individuals requiring treatment and transfer to hospitals. Provide medical cover to other 999 services
Environment Agency	Prepare and maintain Northamptonshire Local Flood Warning Plan. Maintain watercourse capacity and flood management structures. Activate Flood Advisory Service. Issue warnings; monitor catchments; operate defences; support LA's and Emergency Services. Provide local forecasts on the likely timing, extent and severity of flooding. Repair any damaged defences
Highways Agency	Monitor impact of flooding on strategic road network, maintain operation of drainage assets, manage network incidents as required, and provide information to motorists through media, traffic radio, VMS and web site. Reinstate / repair damaged infrastructure
Health Protection Agency	Provide health protection information, public health risk assessment, support and advice to NHS organisations, particularly PCTs and Regional DsPH (Directors of Public Health), and also other agencies involved in the response and recovery at local, regional and national level as well as advice to the public
Kettering General Hospital NHS Foundation Trust	Deal with casualties of the incident and work with partner agencies to accelerate discharges and transfers

Partner	Actions, roles and responsibilities
Northamptonshire Fire and Rescue Service	To save lives and rescue trapped persons; contain and extinguish fires; prevent, contain and make safe spillage or release of chemicals, radioactive materials or other hazardous substances; removal of large quantities of floodwater; assist other relevant agencies to minimise the effects of major flooding on the community
NHS Northamptonshire	Coordinate the local health response to the incident; facilitate the deployment of the most appropriate local healthcare resources in response to the incident. Coordinate the collation of information on vulnerable people from partner health trusts
NHS Northamptonshire Provider Services	Maintain community based healthcare services; provide staff to deliver urgent healthcare to evacuees at reception centres
Northampton General Hospital Trust	Deal with casualties of the incident and work with partner agencies to accelerate discharges and transfers
Northamptonshire County Council as LLFA	Prepare and maintain plans such as the Northamptonshire Local Flood Management Strategy; advise on development proposals; oversee maintenance of ordinary watercourse capacity; maintain flood management structures; undertake prevention works; create register of flood risk assets; work closely with emergency planning; investigate flooding incidents
Northamptonshire County Council as Emergency Planning Unit	Coordinate the Local Authority response. Notify, liaise and coordinate voluntary agencies; liaise and assist the Emergency Services; set up Emergency Reception Centres; set up and operate Information Centres for affected communities
Northamptonshire Healthcare NHS Foundation Trust	Maintain community based healthcare services; provide staff to deliver urgent healthcare to evacuees at reception centres
Northamptonshire Police	Coordinate and facilitate operations within the affected areas; establish and maintain cordons; assist with life saving activities; assist in the provision of information to the public; body recovery

### Flood Warnings

The Environment Agency has a responsibility under the Civil Contingencies Act to provide flood warnings to those at risk from flooding from rivers and the sea. Using the latest available technology, rainfall, river levels and sea conditions are monitored 24 hours a day and this information is used to forecast the possibility of flooding. The Environment Agency provides warnings to the public, media, emergency services and local Authorities.

The Environment Agency uses nationally standardised flood warning codes for this alerting. These codes are:

	<p>This means “<b>Flooding is possible. Be prepared</b>”. The Environment Agency issue Flood Alerts for targeted specific locations that are at risk of flooding.</p> <p>It will indicate that flooding is possible and that people should make some low impact preparations (e.g. move small valuable items upstairs, check travel plans) and remain vigilant.</p>
	<p>This means that “<b>Flooding is expected. Immediate action required</b>”. The Environment Agency mainly target Flood Warnings at specific communities that are at risk from flooding. Some Flood Warnings may apply to stretches of coast and river.</p> <p>It will indicate that flooding is expected and that people should take more direct impact actions e.g. move belongings upstairs.</p>

	<p>This means “<b>Severe Flooding. Danger to life</b>”. All customers who receive a Flood Warning will receive a Severe Flood Warning if conditions are met.</p> <p>It will be used in extreme conditions to tell people that flooding is posing significant risk to life or significant disruption to communities which could also cause risk to life. Depending on the circumstance it would indicate that people should evacuate the area or take shelter within safe buildings.</p>
<p><b>Flood warnings no longer in force</b></p> <p>The Environment Agency issues a message to tell people that the flood threat has passed and includes useful advice on what to do next.</p>	

There are several flood warning areas present within Northamptonshire, including:

- Isolated properties and villages near the Upper River Nene and its tributaries
- Areas near the Wootton Brook in the Collingtree, Merefield and Shelfleys parts of Northampton
- River Nene and tributaries in Northampton, including low-lying areas adjacent to the river
- Areas near the Dallington Brook and Brampton Branch in Northampton
- River Nene upstream of the Northampton Washlands and properties near the Old River Nene in Abington
- River Nene at Billing Aquadrome and nearby Business parks
- Isolated properties near the River Nene from Cogenhoe to Great Doddington
- The Grendon Brook Catchment including Yardley Hastings, Denton, Bozeat, Easton Maudit and Grendon
- Wider area at risk from the River Nene and Lower River Ise in Wellingborough
- Areas near to the River Nene in Wellingborough
- Isolated properties and villages near the River Nene from Wellingborough to Thrapston
- River Nene at Thrapston
- Harpers Brook in Brigstock and Sudborough
- Areas near the River Nene from Thorpe Waterville to Eaglethorpe
- Willow Brook in Weldon and Kings Cliffe
- Areas near the River Nene from Elton to Wansford
- The River Ise in Geddington
- The River Ise in Clipston
- River Jordan in Braybrooke and Little Bowden
- River Welland in Market Harborough
- River Welland in Harringworth
- Clay Coton Brook at Clay Coton
- River Avon at Stanford on Avon
- River Cherwell from Charwelton to above Banbury
- River Cherwell from below Banbury to just above Upper Heyford
- West Brackley
- East Brackley

## *Property Level Flood Resilience and Resistance Measures*

### *Resilience and Resistance for Existing Properties*

Buildings and contents insurance may protect homeowners for the costs incurred through flood damage but no insurance policy will be able to replace items with significant personal meaning or sentimental value, or be able to spare some homeowners the inconvenience and disruption of being forced from their homes during and immediately after a flood. Whilst it is not feasible to provide strategic flood defences to protect all of these dwellings from flooding, there are measures that can be put in place that can minimise the damage as a result of flooding and speed up the repair time following a flood event. Therefore the onus is on all

homeowners who live in flood risk areas to take action to protect their properties from flood damage as far as they can.

Flood protection designed to keep water out of the building are referred to as flood resistance products. Temporary flood resistance products are those that need deploying (fitting or activating) prior to flooding arriving whereas permanent flood resistance products do not need activating. Flood resilience refers to measures that reduce flood damage to buildings in situations where water is allowed to enter.

The benefits of flood resilient alterations to existing properties include:

- Reducing the damage and disruption caused by a flood
- Reducing the time before which homeowners can return to their home
- Reducing the cost of repairs following a flood
- Assisting homeowners in getting property insurance
- Increased peace of mind

The 'Homeowners Guide to Flood Resilience', aims to reduce the worry about which flood protection products to use by illustrating the variety of ways in which a home can be protected, demonstrating how the various products can be fitted and explaining when it is appropriate to use them. The document can be downloaded at <http://www.knowyourfloodrisk.co.uk/pdf/protection-guide.pdf>

A summary of the key resilience and resistant methods that can be employed to reduce the damage to existing buildings as a result of flooding is provided in [Table A20](#) below. Not all methods are suitable for all buildings or all types of flood risk, so careful consideration of appropriate measures is required prior to undertaking any works. Advice should be sought from a reputable source. The [Blue Pages](#) provides a comprehensive list of products and services.

**Table A 20 Flood Resistance – Permanent and Temporary Measures**

Flood Resistance – Permanent Measures	
Measures to prevent water entering doors/windows	<ul style="list-style-type: none"> <li>• Raised threshold</li> <li>• Automatic/self-closing barriers</li> <li>• Water-resisting doors/windows</li> <li>• Sealant around doors/windows</li> </ul>
Measures to prevent water penetrating walls	<ul style="list-style-type: none"> <li>• Repointing and repairing cracks</li> <li>• Sealing service outlets</li> <li>• Covering weep-holes</li> <li>• Facing bricks</li> <li>• Rendering</li> <li>• Wall sealant</li> <li>• Permanent wall barrier</li> <li>• Tanking</li> <li>• Water-resisting air bricks</li> </ul>
Measures to prevent water entering service pipes	<ul style="list-style-type: none"> <li>• Non-return valves on waste pipes</li> </ul>
Measures to prevent water penetrating floors	<ul style="list-style-type: none"> <li>• Reinforced floor with continuous damp-proof membrane</li> <li>• Suspended floor</li> <li>• Raised floor levels</li> <li>• Tanking of basements</li> </ul>
Flood Resistance – Temporary Measures	
Measures to prevent water entering doors/windows	<ul style="list-style-type: none"> <li>• Removable barriers to doors and windows</li> <li>• Sandbags/adsorbent bags</li> <li>• Demountable barriers</li> <li>• Free-standing barriers</li> <li>• Perimeter wall with flood gates</li> </ul>
Measures to prevent water penetrating walls	<ul style="list-style-type: none"> <li>• Air-brick covers</li> </ul>

Measures to prevent water entering service pipes	<ul style="list-style-type: none"> <li>• Toilet plugs</li> <li>• Bolt-down manhole covers</li> <li>• Vent covers</li> <li>• Pipe bungs</li> </ul>
<b>Flood Resilience</b>	
Measures to limit water damage	<ul style="list-style-type: none"> <li>• Water compatible internal walls using waterproof paints and plasters</li> <li>• Water compatible floors such as tiling rather than carpets or floorboards</li> <li>• Water compatible appliances and fixtures</li> </ul>
Remove vulnerable items from flood risk	<ul style="list-style-type: none"> <li>• Raised utilities and appliances</li> <li>• Removable fixtures and fittings</li> <li>• Relocate valuables</li> </ul>
Measures to expel water	<ul style="list-style-type: none"> <li>• Sump and pump</li> </ul>

### ***Flood Warning and Evacuation Plan***

For properties located in high flood risk areas, it is recommended that the owners/occupiers sign up to 'Floodline Warnings Direct', a service operated by the Environment Agency where the area is designated to receive flood warnings (<http://www.environment-agency.gov.uk/homeandleisure/floods/38289.aspx>). Where a particular site lies within an area not currently eligible to receive flood warnings, it can be registered with the local Environment Agency office as an 'area of interest' in order to receive such warnings. The flood warnings can be provided via mobile, telephone, fax or pager.

More detailed information on the likely extent and time scale of these warnings can be obtained by request from the Environment Agency, by their 'Quickdial' recorded information service, or via their website.

For any proposed commercial or industrial developments within a designated floodplain, or those providing a service to vulnerable groups such as elderly care homes or hospitals, a system for monitoring flood warnings should be developed with designated responsible persons able to monitor and disseminate the warnings. This will provide more time to enable emergency access and egress of staff or residential occupants away from the local area which may become flooded during a flood event (including routes for egress) prior to inundation.

They should also enable sufficient time to implement protection measures for any commercial goods or personal belongings on site through sealing all external doors to prevent flood inflow into such buildings as a precaution.

### ***Northamptonshire Sand Bag Policy***

It is the responsibility of all homeowners / residents to protect their own property. Residents who are aware that their homes are at a high risk of flooding, for example as a result of the close proximity of a watercourse, are recommended to obtain their own sandbags to enable early preparation before floods happen. These may be purchased from a local DIY store or builders' merchant.

The County Council does not provide sandbags. However, additional support and equipment may be available from your local District or Borough Council or Parish Council, but this will depend on the area you live in:

- **Corby Borough Council** may be able to supply sandbags to residents or businesses in the event of a flood. See <http://www.corby.gov.uk/site-page/civil-emergencies-flooding>.
- **Daventry District Council** does not provide sandbags.
- **East Northamptonshire Council** may be able to supply sandbags to residents or businesses in the event of a flood. See [http://www.east-northamptonshire.gov.uk/site/scripts/documents\\_info.aspx?documentid=702](http://www.east-northamptonshire.gov.uk/site/scripts/documents_info.aspx?documentid=702).
- **Kettering Borough Council** only provides sandbags to Parish Councils in their area.
- **Northampton Borough Council** does not provide sandbags.

- **South Northamptonshire Council** does not provide sandbags.
- **Wellingborough Borough Council** does not provide sand bags.

## A Guide for the Public Before, During and After a Flood

The Environment Agency has published guides for the public to explain what they should do before, during and after a flood. These are summarised in [Table A21](#) below and full guides are available online at <http://www.environment-agency.gov.uk/homeandleisure/floods/31424.aspx>

**Table A 21 Guidance for the Public During and After Flooding**

<b>Preparing for flooding</b>	
Know who to contact and how	<ul style="list-style-type: none"> <li>• Agree where you will go and how to contact each other</li> <li>• Check with your council if pets are allowed at evacuation centres</li> <li>• Keep a list of all your important contacts to hand</li> </ul>
Think about what you can move now	Don't wait for a flood. Move items of personal value such as photo albums, family films and treasured mementos to a safe place.
Think about what you would want to move to safety during a flood	<ul style="list-style-type: none"> <li>• pets</li> <li>• cars</li> <li>• furniture</li> <li>• electrical equipment</li> <li>• garden pot plants and furniture</li> <li>• what else?</li> </ul> <p>Think about who you could ask for help and who you could offer help to, particularly vulnerable neighbours or relatives, in the event of a flood.</p>
Check your insurance cover	<ul style="list-style-type: none"> <li>• Check your buildings and contents insurance policy.</li> <li>• Confirm you are covered for flooding.</li> <li>• Find out if the policy replaces new for old, and if it has a limit on repairs.</li> <li>• Don't underestimate the value of your contents.</li> </ul>
Know how to turn off your gas, electricity and water mains supplies	<ul style="list-style-type: none"> <li>• Ask your supplier how to do this.</li> <li>• Mark taps or switches with stickers to help you remember.</li> </ul>
Prepare a flood kit of essential items and keep it handy	<ul style="list-style-type: none"> <li>• Copies of your home insurance documents.</li> <li>• A torch with spare batteries.</li> <li>• A wind-up or battery radio.</li> <li>• Warm, waterproof clothing and blankets.</li> <li>• A first aid kit and prescription medication.</li> <li>• Bottled water and non-perishable foods.</li> <li>• Baby food and baby care items.</li> </ul>

### **During a flood - In an emergency follow these simple steps to help you stay safe**

- Check on other people in your household to make sure they are safe.
- If the flood water hasn't reached you, move your car to higher ground.
- Gather essential items and put them upstairs or in a high place.
- Fill jugs and saucepans with clean water.
- Turn off gas, electricity and water supplies if safe to do so. **DO NOT** touch sources of electricity when standing in flood water. If you have an electric pump running you will need to leave your electricity supply on.
- Put plugs in sinks and baths to stop water entering your home. Weigh them down with a sandbag or plastic bag filled with garden soil. This is only a short-term solution. You may need to consider a longer-term solution such as non-return valves, as groundwater can be high for months.
- Keep listening to local radio updates or call Floodline on 0845 988 1188. Stay safe. Always listen to the advice of the emergency services and evacuate when told to do so.
- If evacuated, you will be taken to an evacuation centre run by your local council. Free food and bedding is provided and most will let you bring your pets.
- Bring spare clothing, essential medication, pet food and baby care items if you have an infant.

### **After a Flood - Cleaning up after a flood**

- Flood water can contain sewage and chemicals. Always wear waterproof clothing, gloves, wellington boots and a face mask.
- Make sure that your electrics and central heating are checked by qualified engineers before switching them back on.
- Clean and disinfect your property using ordinary household products.
- Use a normal garden hose to wash down surfaces.
- If you are drying your property naturally, keep windows and doors open as much as possible. If using dehumidifiers, close all windows and doors.

### **After a Flood – Insurance**

- Ask your insurance company how long it will be before the loss adjuster visits.
- Photograph or film your damaged property.
- Keep copies of letters, emails and receipts as well as making a note of all phone calls.
- Flood repairs can take weeks or months to complete. Ask your insurance company if they will provide temporary accommodation.
- If you don't have insurance, your local council should be able to provide you with information on hardship grants and charities.

## ***APPENDIX 9: PROTOCOLS FOR DATA MANAGEMENT***

Section 14 of the [Flood and Water Management Act](#) gives the County Council, as Lead Local Flood Authority, the power to request information in connection with its flood risk management functions. It also states that information requested must be provided in the manner and within the period specified in the request.

The Information can cover any data, documents or facts recorded in any form and can include paper files, notes, reports, databases, spreadsheets, drawings and plans, photographs and videos, electronic documents, emails, etc. There is a vast amount of data, in these different forms, held by a number of different risk management authorities within Northamptonshire.

### ***Data Register***

The Act requires LLFAs to gather and maintain records associated with local flood risk management and this will require a commitment towards the appropriate gathering, storing and dissemination of data. Similarly, risks associated with local flooding will need to be understood and this will require a commitment towards creating and enhancing information and recognising that there are aspects of local flood risk that are currently not well known.

### ***Protocol for Requesting and Sharing Information***

Section 13 and 14 of the F&WMA 2010 relates to the co-operation and sharing of information between flood risk authorities. It states that:

- (1) A relevant authority must co-operate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions.
- (2) A relevant authority may share information with another relevant authority for the purpose of discharging its duty under subsection (1).

The County Council has sought to work within established partnerships to gather information that may be required to exercise its risk management functions.

All data collected has been catalogued and stored on the County Council's computer network system, access to which is restricted at a departmental level. All data has been collected to the highest possible quality however, the quality of individual datasets provided is highly variable.

### ***Confidentiality agreements***

Confidentiality agreements have been entered into with each of the three water companies: Anglian Water, Severn Trent and Thames that cover the geographic area of Northamptonshire. Certain sources of data provided by the Environment Agency are also subject to data restrictions.