FLOOD INVESTIGATION REPORT

THE SQUARE, EARLS BARTON

16th SEPTEMBER 2015

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

Prepared By: Richard Jones

Date: 14th March 2016

Reference: 15/21210

Revision: 03
# REVISION SCHEDULE

Northamptonshire County Council  
Flood Investigation Report  
The Square, Earls Barton

David Smith Associates Reference :  15/21210

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<tr>
<th>Rev</th>
<th>Date</th>
<th>Details</th>
<th>Author</th>
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<th>Approved</th>
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<tr>
<td>01</td>
<td>20/01/16</td>
<td>Draft Report</td>
<td>Richard Jones (David Smith Associates)</td>
<td>Josie Bateman (Senior Project Manager F&amp;WM)</td>
<td>Josie Bateman (Senior Project Manager F&amp;WM)</td>
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<td>02</td>
<td>26/01/16</td>
<td>Draft Report for Stakeholder Consultation</td>
<td>Richard Jones (David Smith Associates)</td>
<td>Josie Bateman (Senior Project Manager F&amp;WM)</td>
<td>Josie Bateman (Senior Project Manager F&amp;WM)</td>
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<td>03</td>
<td>14/03/16</td>
<td>Revision following additional information/consultation</td>
<td>Richard Jones (David Smith Associates)</td>
<td>Josie Bateman (Senior Project Manager F&amp;WM)</td>
<td>Josie Bateman (Senior Project Manager F&amp;WM)</td>
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FOREWORD

One of the roles of Northamptonshire County Council as the Lead Local Flood Authority (LLFA) is to carry out investigations into flooding incidents if they meet the set thresholds.

The LLFA will:

- Identify and explain the likely cause/s of flooding;
- Identify which authorities, communities and individuals have relevant flood risk management powers and responsibilities;
- Provide recommendations for each of those authorities, communities and individuals;
- Outline whether those authorities, communities or individuals have or will exercise their powers or responsibilities in response to the flooding incident.

The LLFA cannot:

- Resolve the flooding issues or provide designed solutions;
- Force Authorities to undertake any of the recommended actions.
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<tr>
<td>Photographs from flood incident investigation 16th October 2015</td>
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</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

This Flood Investigation Report (FIR) has been completed by David Smith Associates on behalf of Northamptonshire County Council under its duties as the Lead Local Flood Authority (LLFA) in accordance with Section 19 of the Flood and Water Management Act 2010 (F&WMA).

Statutory Context

Section 19 of the F&WMA states that on becoming aware of a flood which meets certain predetermined criteria, the LLFA must undertake a formal flood investigation in order to determine the relevant flood risk management authorities involved and which flood risk management functions have been, or should be taken to mitigate future flood risk. Where an authority carries out an investigation it must publish the results.

Within the Northamptonshire Local Flood Risk Management Strategy the approved thresholds for undertaking a FIR are:

<table>
<thead>
<tr>
<th>Northamptonshire LLFA thresholds for formal investigation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A formal flood investigation will be carried out if one or more of the following occurs:</td>
</tr>
<tr>
<td>• Flooding has affected critical infrastructure for a period in excess of 3 hours from the onset of flooding;</td>
</tr>
<tr>
<td>• Internal flooding of one property has been experienced on more than one occasion in the last 5 years;</td>
</tr>
<tr>
<td>• Internal flooding of five properties in close proximity has been experienced during one single flood incident.</td>
</tr>
</tbody>
</table>

**Definition of close proximity:** Where it is reasonable to assume that the affected properties were flooded from the same source or interaction of sources.

**Definition of internal flooding:** Where water crosses the threshold of a commercial or residential building.

Flooding Incident

It was deemed necessary to complete a formal investigation into the flood incident at The Square, Earls Barton on 16th September 2015. Internal flooding of one property has been experienced on more than one occasion in the last 5 years. This meets the threshold for investigation as set out above.
Flood Incident Report
The Square, Earls Barton

Cause of Flooding

The flooding that occurred on The Square, Earls Barton was caused by moderate rainfall. Drainage systems were unable to collect and carry rainwater effectively. This led to excess surface water flowing over ground following natural contours to low points on the public highway and around private property.
The localised layout and levels of the carriageway, kerbs and footways resulted in surface water flowing towards vulnerable properties.

Main Findings

Our main conclusion is that risk management authorities, the local community, and other groups, must continue to work together, sharing information and reports. Property owners should be made aware of the flood resistance and resilience measures available, and this information is provided on the NCC Flood Toolkit link below;

1. INTRODUCTION

1.1 Lead Local Flood Authority Investigation

1.1.1 Section 19 of the Flood and Water Management Act (F&WMA) states:

(1) On becoming aware of a flood in its area, a Lead Local Flood Authority must, to the extent that it considers it necessary or appropriate, investigate—

(a) which risk management authorities have relevant flood risk management functions, and

(b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.

(2) Where an authority carries out an investigation under subsection (1) it must—

(a) publish the results of its investigation, and

(b) notify any relevant risk management authorities.

1.1.2 Within the Northamptonshire Local Flood Risk Management Strategy the thresholds for undertaking a Formal Investigation Report in the County have been determined as:

<table>
<thead>
<tr>
<th>Northamptonshire LLFA thresholds for formal investigation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A formal flood investigation will be carried out if one or more of the following occurs:</td>
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<tr>
<td>• Flooding has affected critical infrastructure for a period in excess of 3 hours from the onset of flooding;</td>
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<td>• Internal flooding of one property has been experienced on more than one occasion in the last 5 years;</td>
</tr>
<tr>
<td>• Internal flooding of five properties in close proximity has been experienced during one single flood incident.</td>
</tr>
</tbody>
</table>

Definition of close proximity: Where it is reasonable to assume that the affected properties were flooded from the same source or interaction of sources.

Definition of internal flooding: Where water crosses the threshold of a commercial or residential building.
1.2 Flooding Incident

1.2.1 It was deemed necessary to complete a formal investigation into a flood incident at The Square, Earls Barton on 16th September 2015. Internal flooding of one property has been experienced on more than one occasion in the last 5 years. This meets the threshold for investigation as set out above.

1.2.2 David Smith Associates undertook a Flood Incident Investigation on the 16th October 2015. Affected residents and representatives of the Parish Council and Highway Authority were spoken to regarding the flooding incident on 16th September 2015, and previous flooding incidents.

1.3 Site Location

1.3.1 Earls Barton is situated in the southeast of Northamptonshire approximately six miles northeast of Northampton town centre, and three miles southwest of Wellingborough town centre. See Appendix A.

1.3.2 The majority of Earls Barton village is situated on the side of the valley forming part of the catchment of the River Nene. The River flows west to east and is located approximately one mile to the south and approximately 30 metres lower in elevation.

1.3.3 The Square is a central crossroads in the village. High Street, West Street, Broad Street and Station Road meet at this point. It is approximately 170 metres west of the low point of Broad Street and six metres higher in elevation.

1.3.4 The catchment area which would flow towards The Square starts approximately 650 metres to the northeast in the residential areas of North Street and Manor Road which link onto High Street. There is also a contribution from Hardwick Lane and West Street to the northwest.

1.3.5 The Square is a meeting point for the flow of surface water from West Street and High Street which rise steeply away to the northeast and northwest. The natural flow path continues east on Broad Street to the low point.

1.3.6 Shops, residential properties and a church line the south side of The Square and Broad Street.

1.3.7 With reference to mapping on NCC’s Flood Toolkit website, The Square and Broad Street are shown to be at high risk of surface water flooding. This means that each year, this area has a chance of flooding of greater than 3.3%.
1.4 **Drainage Systems**

1.4.1 Foul and surface water public sewers serve wide areas of Earls Barton. Surface Water sewers flow to The Square from High Street and West Street, and on to the low point on Broad Street. They then flow south as either surface water or combined sewer systems.

1.4.2 Some surface water sewers are directed into the centre of Earls Barton from outside the catchment on Northampton Road and West Street.

1.4.3 Road gullies are located in all of the main roads leading to The Square. These are part of the Highway Drainage system which are understood to connect to the public sewers. Several road gullies on High Street and Broad Street were seen to be blocked with leaves and silt during the Flood Incident Investigation.

1.4.4 The carriageway of The Square and Broad Street is higher than the south footway and building thresholds at some locations. Various channel drainage systems have been installed at the frontage of properties to direct surface water away from doorways or to collect it into below ground drainage systems.

1.4.5 There are localised lowered kerbs on Station Road, adjacent to The Square, as a pedestrian crossing point. This limits the depth of the carriageway channel.

1.4.6 Limited areas of West Street and High Street were inspected during the Flood Incident Investigation, but several private car parks and other areas of hardstanding were seen to runoff to the public highway with limited, un-maintained or non-existent drainage systems to prevent this.
2. DRAINAGE HISTORY

2.1 Previous Flood Incidents

2.1.1 The following table lists flooding incidents that have been recorded in the area of the flood incident:

<table>
<thead>
<tr>
<th>Year</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/04/98</td>
<td>Station Road. Road closed for 48 hours due to surface water flooding.</td>
</tr>
<tr>
<td>Unknown</td>
<td>The Square. Flooding of highway and external flooding of private</td>
</tr>
<tr>
<td></td>
<td>property caused by proven lack of hydraulic capacity in existing highway</td>
</tr>
<tr>
<td></td>
<td>drain.</td>
</tr>
<tr>
<td>Pre-2011</td>
<td>Dowthorpe End. Spring line/groundwater causing interior flooding.</td>
</tr>
<tr>
<td>Pre-2011</td>
<td>West Street. Spring line/groundwater causing interior flooding.</td>
</tr>
<tr>
<td>Pre-2011</td>
<td>Flooding on The Square and Broad Street. Roads flooded but no properties.</td>
</tr>
<tr>
<td>Approx 2011</td>
<td>Property on Broad Street internally flooded by surface water from</td>
</tr>
<tr>
<td></td>
<td>Broad Street.</td>
</tr>
<tr>
<td>21/12/12</td>
<td>Station Road, near traffic signals. Flooding.</td>
</tr>
<tr>
<td>23/12/12</td>
<td>Station Road. Flooding.</td>
</tr>
<tr>
<td>2015</td>
<td>Four incidents of burst water main affecting West Street, Sunnyside and</td>
</tr>
<tr>
<td></td>
<td>Broad Street.</td>
</tr>
<tr>
<td>Pre-September</td>
<td>Approximately six times every year for last five years.</td>
</tr>
<tr>
<td>2015</td>
<td>Surface Water from High Street and West Way overtopped kerbs at corner</td>
</tr>
<tr>
<td></td>
<td>of Station Road and The Square. Internal flooding of property at The</td>
</tr>
<tr>
<td></td>
<td>Square, or manually prevented from doing so by continuous efforts to</td>
</tr>
<tr>
<td></td>
<td>provide temporary barriers at the kerb.</td>
</tr>
<tr>
<td>14/09/15</td>
<td>South footway flooded at low point of Broad Street. Surface water from</td>
</tr>
<tr>
<td></td>
<td>Broad Street, The Square and Churchill Road.</td>
</tr>
<tr>
<td>16/09/15</td>
<td>Surface Water from High Street and West Way overtopped kerbs at corner</td>
</tr>
<tr>
<td></td>
<td>of Station Road and The Square. Surface water entered the doorway of</td>
</tr>
<tr>
<td></td>
<td>property at The Square and flowed to several rooms. Nearly reaching</td>
</tr>
<tr>
<td></td>
<td>electrical cupboard.</td>
</tr>
</tbody>
</table>

2.2 Rainfall Analysis

2.2.1 Rainfall data from the Wellingborough and Bozeat Weather Stations was sourced from the Environment Agency. Total rainfall on 16/09/15 was measured at 6.58mm (Wellingborough) and 8.60mm (Bozeat). In the previous three days there had been total rainfall per day of between 0.6mm and 5.6mm.

2.2.2 The quantity of rain that fell on 16/09/15 is considered moderate.
3. SUMMARY OF IMPACTS AND FINDINGS

3.1 Surface Water Runoff

3.1.1 It was reported by affected residents that surface water runoff was witnessed flowing from higher ground on West Way and High Street. This flowed along the carriageways, over road gullies, to The Square building up at the corner of Station Road and Broad Street.

3.1.2 Surface Water from High Street flowed from north to south across the crossroads junction to the corner of Station Road and Broad Street.

3.1.3 A proportion of the surface water continued east on Broad Street to the low point opposite Churchill Road. This was joined with surface water runoff from Churchill Road and Broad Street to the east. Water was reported to be flowing out of road gullies at low areas of Broad Street.

3.1.4 Surface water overtopped the kerbs at the corner of Station Road and The Square where these are lowered for a pedestrian crossing across Station Road. This water flowed onto the footway on the south side of the crossroads and into the doorway of an adjacent property.

3.1.5 Surface water overtopped the kerbs on the south side of the road at the low point of Broad Street which flooded the footway.

3.2 Areas of Flooding and Impacts

3.2.1 Footways at the corner of Station Road and The Square were flooded. The road and footways at low points of Broad Street were flooded.

3.2.2 Surface water flowed into the doorway of a property at The Square. Approximately 25mm depth of water flowed through several rooms, coming close to an electrical cupboard.

3.2.3 The internal flooding of the property at The Square required cleaning up after the event and temporarily affected the business.
4. CONCLUSION

4.1.1 The flooding that occurred in Earls Barton, was caused by moderate rainfall which was unable to be collected and carried effectively by drainage systems. Surface water flowed from private property and the highway on higher ground, following natural contours to low points in the village.

4.1.2 The specific arrangement of kerbs and levels, and the relationship in levels between the carriageway and property thresholds, leads to areas of The Square and Broad Street being vulnerable to surface water flowing off the carriageway. This can flow onto the footway and into doorways of properties.

4.1.3 Low points of the village rely on highway drainage systems and public sewers to collect and convey surface water. Piped drainage systems and road gullies are vulnerable to blockage and exceedance.
5. **RIGHTS AND RESPONSIBILITIES**

5.1 **Communities and Residents**

5.1.1 Communities may consist of the Town or Parish Council, Flood Forum, Community Group and affected residents, amongst others.

5.1.2 Earls Barton residents who are aware that they are at risk of flooding should take action to ensure that they and their properties are protected.

5.1.3 Community resilience is important in providing information and support to each other if flooding is anticipated. Actions taken can include signing up to Flood Warning Direct (if available), nominating a Community Flood Warden, producing a community flood plan, implementing property level protection and moving valuable items to higher ground.

5.1.4 Have a Community Flood Risk Report carried out. These reports need to be prepared by a suitably qualified Flood Risk Engineer. If you are considering hiring a professional, we would recommend that you use the Buy With Confidence website.

https://www.buywithconfidence.gov.uk/

Alternatively, the Northamptonshire County Council Flood and Water Management Team can prepare flood risk reports for your community. Email us at floodandwater@northamptonshire.gov.uk with the subject title “community flood risk report for [name of your community]”. Two example Community Flood Risk Reports for the villages of Brigstock and Geddington can be downloaded from the Flood Toolkit.

http://www.floodtoolkit.com/how-to-guides/community-project/

5.1.5 A Community Flood Risk Report could then be used to produce a more detailed Community Flood Risk and Mitigation Investigation. This will find specific areas in the catchment that could be improved or monitored to reduce flood risk. There are guides and leaflets to help through this process, available on the Flood Toolkit.

http://www.floodtoolkit.com/how-to-guides/community-project/

5.1.6 Permanent measures such as installing floodgates, raising electrical sockets and fitting non-return valves on pipes can also be considered. NCC and the EA can provide advice on these matters and more information can be found at:

http://www.floodtoolkit.com/emergency/preparation/
NCC holds a flood library covering various subjects, some of which relate to this Flood Incident. The relevant leaflets have been identified and are available at:

http://www.floodtoolkit.com/pdf-library/

<table>
<thead>
<tr>
<th>No.</th>
<th>Leaflet Title</th>
<th>To Review</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Agricultural Run-Off</td>
<td></td>
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<tr>
<td>2</td>
<td>Ditch Clearance</td>
<td></td>
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<tr>
<td>3</td>
<td>Flood Investigations</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Watercourse Management</td>
<td></td>
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<tr>
<td>5</td>
<td>Flood Related Benefits of the Water Framework Directive</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Reservoirs and Flooding</td>
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</tr>
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<td>7</td>
<td>Funding for Flood Alleviation</td>
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</tr>
<tr>
<td>8</td>
<td>Roles and Responsibilities for Sewers</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>Roles and Responsibilities for Highways</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Groundwater Flooding</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>What to do in a Flood Emergency</td>
<td>X</td>
</tr>
<tr>
<td>12</td>
<td>How to Protect your Home</td>
<td>X</td>
</tr>
<tr>
<td>13</td>
<td>Insurance and Flood Risk</td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>Using Experts for Flood Risk Assessment</td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>Riparian Ownership and Flood Risk</td>
<td></td>
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<tr>
<td>16</td>
<td>Flood Defence Consenting</td>
<td></td>
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<tr>
<td>17</td>
<td>Using Agricultural Land for Attenuation</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Enforcing Flood Risk Management</td>
<td>X</td>
</tr>
<tr>
<td>19</td>
<td>Flood Related Roles of Parish Councils and Communities</td>
<td>X</td>
</tr>
<tr>
<td>20</td>
<td>Buying a House: Is there a Flood Risk?</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Flood Warnings</td>
<td>X</td>
</tr>
<tr>
<td>22</td>
<td>Neighbourhood Planning and Flood Risk</td>
<td>X</td>
</tr>
<tr>
<td>23</td>
<td>New Development and Emergency Flood Plans</td>
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<tr>
<td>24</td>
<td>Fisheries and Flooding</td>
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<tr>
<td>25</td>
<td>Flood Advice for Businesses</td>
<td>X</td>
</tr>
<tr>
<td>26</td>
<td>Impacts of Flooding</td>
<td>X</td>
</tr>
<tr>
<td>27</td>
<td>Together we can Reduce Flood Risk</td>
<td>X</td>
</tr>
</tbody>
</table>

Anyone affected by flooding should try to document as much information about the incident as possible using the Flood Incident Report Form, which can be found at:

https://www.floodtoolkit.com/emergency/report-flood/
5.2 **Lead Local Flood Authority (LLFA)**

5.2.1 As stated within the introduction section, NCC as the LLFA has a responsibility to investigate flood incidents under Section 19 of the F&WM Act.

5.2.2 The LLFA also has a responsibility to maintain a register of assets which have a significant effect on flooding from surface runoff, groundwater or ordinary watercourses (non-Main River) as detailed within Section 21 of the F&WM Act. The register must contain a record about each structure or feature, including the ownership and state of repair. NCC is also required to keep a record of flooding hotspots across the county.

5.2.3 NCC’s practices relating to third party assets is to notify third party owners of their asset forming part of a flood risk system, and assist by advising third party owners on their condition and their responsibility to maintain the assets.

5.2.4 As Lead Local Flood Authority NCC will be looking for support from other authorities, communities and individual home owners to ensure flood incidents are reported, and any assets which have a significant effect on flood risk are recorded on the asset register.

5.2.5 While NCC can suggest possible causes of flooding in Earls Barton, and make recommendations to ensure flood risk is mitigated as far as possible, the F&WM Act does not provide NCC with the mandate or funding to tackle identified causes of flooding or force Risk Management Authorities to undertake any recommended actions.

5.3 **Highway Authority (Northamptonshire Highways)**

5.3.1 NCC Highways have a duty to maintain the highway under Section 41 of the Highway Act 1980 but subject to the special defence in Section 58.

5.3.2 New highway drainage systems are designed to Highways England’s Design Manual for Roads and Bridges (Volume 4, Section 2). They are only required to be constructed to drain surface water run-off from within the highway catchment rather than from the wider catchment.

5.3.3 There are historic drainage systems in historic highway which can become the responsibility of the Highway Authority due to dedication, as opposed to adoption. These drainage systems may not have been designed to any standard.
5.4 Water Authority (Anglian Water Services) (AWS)

5.4.1 Water and sewerage companies are responsible for managing the risks of flooding from surface water, foul water or combined sewer systems. 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.

5.4.2 Since October 2011, under the ‘Private Sewer Transfer’, AWS adopted piped systems on private land that serve more than one curtilage and were connected to a public sewer on 1st July 2011. 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.

5.4.3 Sewerage Undertakers are responsible for public sewers and lateral drains. 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 sewage from one point to another, and discharges via a positive outfall.

5.4.4 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.

5.5 Borough Council of Wellingborough (BCoW)

5.5.1 BCoW has powers under Section 14 of the Land Drainage Act 1991 (LDA) to undertake flood risk management works on ordinary watercourses (non-Main River) where deemed necessary.

5.5.2 Under Section 20 of the LDA, BCoW have the powers to (by agreement of any person and at that person’s expense) carry out any drainage work which that person is entitled to carry out. Agreement may not be required in certain emergency or legally upheld situations.

5.5.3 BCoW also has powers to serve notice on persons requiring them to carry out necessary works to maintain the flow of ordinary watercourses under Section 25 of the LDA.

5.5.4 The above powers are subject to consent from NCC.

5.5.5 BCoW are the Planning Authority and have a role in Building Control and the Building Regulations.
5.6 Environment Agency (EA)

5.6.1 The EA has a strategic overview responsibility under the F&WMA as well as permissive powers to carry out maintenance work on Main Rivers under Section 165 of the Water Resources Act 1991 (WRA). The River Nene south of Earls Barton is a Main River, but this is situated approximately one mile to the south and is not considered a factor in this flood incident.

5.6.2 The EA are statutory consultees of the Local Planning Authority.

5.7 Land Owners and Developers

5.7.1 Land owners are responsible for the drainage of their land and controlling any movement of sediment from their land. Legally, owners of lower-level ground have to accept natural land drainage from adjacent land at a higher level. The exception to this is where the owner of the higher level land has carried out “improvements” such that the run-off from the land cannot be considered “natural”.

5.7.2 Agricultural practices by land owners can be considered as “improvements” to the land, so that cultivation of crops or other land uses can take place. Mitigation works are required on improved land to account for the change in natural land drainage and changes to surface water run-off this can create.

5.7.3 Land owners and developers are responsible for working with the Local Planning Authority to ensure that their development is completed in accordance with the Planning Permission and all conditions that have been imposed.

5.7.4 Advice for Developers is available on the Flood Toolkit.

http://www.floodtoolkit.com/planning/developers/

The leaflets detailed in 5.1.7 above should also be referred to.
6. RECOMMENDATIONS

6.1 General

6.1.1 Listed below are the recommended course of actions emanating from this formal Flood Investigation Report.

6.1.2 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.

6.1.3 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.

6.2 Communities and Residents

(e.g. Town/Parish Council, Flood Forum, Community Group, Land owners and affected residents)

6.2.1 Nominate a Community Flood Warden to help coordinate the following:

- Produce an overall plan of the catchment area, with the cooperation of all drainage system owners of surrounding properties. This can be used to plan a strategy of ownership, maintenance and improvements of existing drainage systems. This should form the basis of a Community Flood Plan.

- Preparing Household Emergency Plans for vulnerable properties in this area.

- Regularly inspect road gullies, and leaf and silt build up at kerbs, over the whole catchment. Report blockages or other issues to the Highway Authorities ‘Street Doctor’ service.


6.2.2 Explore options for property level protection and implement any recommendations. This could include additional drainage at the front of properties and flood gates;

Explore community wide solutions (e.g. attenuation areas, overflow routes, tree planting).

Information on Flood Prevention measures for Home Owners, Communities and Businesses can be found on the Flood Toolkit

http://www.floodtoolkit.com/risk/prevention/
6.2.3 Use the Flood Toolkit Funding Tool to find sponsors who may be willing to help fund improvement projects.

http://www.floodtoolkit.com/risk/funding/

6.2.4 Review the library of information on the Flood Toolkit, detailed in 5.1.7 above.

6.2.5 Continue to report flood incidents to the Lead Local Flood Authority at:

https://www.floodtoolkit.com/emergency/report-flood/

Endeavour to obtain as much evidence of flood events as possible, such as photographic and video evidence.

6.3 Lead Local Flood Authority (LLFA)

6.3.1 Work with NCC Emergency Planning and the Environment Agency to support the community in the instatement and training of a community based Flood Warden.

6.3.2 Work with NCC Emergency Planning, the Environment Agency and other flood management authorities to support the community in the production of a Community Flood Plan and provide advice to residents on how to explore options for property level protection.

6.3.3 Inform owners of the drainage systems and watercourses within the overall surface water catchment area of their legal responsibilities, and provide details of a recommended maintenance regime.

6.4 Highway Authority (Northamptonshire Highways)

6.4.2 Undertake regular highway drainage cleansing throughout Earls Barton, including the carriageway channel. Identify and develop a detailed plan of their assets to share with the LLFA and the Community.

6.4.3 Assess the capacity of their assets and identify any areas with insufficient capacity for draining runoff from the highway. Where this leads to flood risk to properties improvement works should be considered.

6.4.4 Assess the suitability of third party drainage systems accepting discharge from Highway Drainage systems and report any unsatisfactory areas to the LLFA.

6.4.5 Consider action to reduce the likelihood of surface water runoff from private areas to the public highway.

6.4.6 Review the layout and levels of the carriageway, kerbs and footway at vulnerable areas of Earls Barton and consider improvements that could reduce the likelihood of surface water overtopping kerbs and flowing towards private property.
6.5  **Water Authority (Anglian Water Services) (AWS)**

6.5.1  Assess the sources of water entering the public sewerage system.

6.5.2  Assess the capacity of their assets and identify any areas of insufficient capacity. Where this leads to flood risk to properties improvement work should be considered.

6.5.3  Develop a detailed plan of their assets to share with the LLFA and the Community.

6.6  **Borough Council of Wellingborough (BCoW)**

6.6.1  Continue to consult with the Environment Agency and Lead Local Flood Authority as required in respect of planning applications for new developments to reduce flood risk. Aim to ensure that any design assumptions within planning applications are verified prior to completion of works.

6.6.2  Undertake to utilise enforcement powers under Section 25 of the Land Drainage Act 1991 where it is considered that riparian owners are failing to maintain watercourses in their ownership.

6.6.3  Endeavour to assist other flood management authorities in the preparation of a detailed plan of assets relating to drainage and flood risk, to share with the LLFA and the Community.

6.7  **Land Owners and Developers**

6.7.1  Undertake regular inspection and maintenance of their drainage systems in accordance with a defined maintenance regime. Identify and develop a detailed plan of their assets to share with the LLFA and the Community.

6.7.2  Assess the capacity of their drainage systems and identify any areas with insufficient capacity for the collection, conveyance, storage and disposal of surface water. Where this could lead to runoff to the public highway or third party private property improvement works should be considered.

6.7.3  Review the library of information on the Flood Toolkit, detailed in 5.1.7 above.
7. DISCLAIMER

This report has been prepared as part of Northamptonshire County Council’s responsibilities under the Flood and Water Management Act 2010. It is intended to provide context and information to support the delivery of the local flood risk management strategy and should not be used for any other purpose.

The findings of the report are based on a subjective assessment of the information available by those undertaking the investigation and therefore may not include all relevant information. As such it should not be considered as a definitive assessment of all factors that may have triggered or contributed to the flood event.

Any recommended actions outlined in this FIR will be for the relevant responsible body or persons to assess in terms of resource implications, priority and cost/benefit analysis of the proposal. Moving forward, these may be included in the Action Plan linked to the Local Flood Risk Management Strategy or in the relevant risk management authority’s future work programme as appropriate.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by David Smith Associates and Northamptonshire County Council when preparing this report, including, but not limited to those key assumptions noted in the Report, including reliance on information provided by others.

David Smith Associates and Northamptonshire County Council expressly disclaim responsibility for any error in, or omission from, this report arising from or in connection with any of the assumptions being incorrect.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the time of preparation and David Smith Associates and Northamptonshire County Council expressly disclaim responsibility for any error in, or omission from, this report arising from or in connection with those opinions, conclusions and any recommendations.

The implications for producing Flood Investigation Reports and any consequences of blight have been considered. The process of gaining insurance for a property and/or purchasing/selling a property and any flooding issues identified are considered a separate and legally binding process placed upon property owners and this is independent of and does not relate to the County Council highlighting flooding to properties at a street level.

David Smith Associates and Northamptonshire County Council do not accept any liability for the use of this report or its contents by any third party.
ACRONYMS

EA  Environment Agency
NCC  Northamptonshire County Council
BCoW  Borough Council of Wellingborough
FIR  Flood Investigation Report
F&WMA  Flood and Water Management Act 2010
LDA  Land Drainage Act 1991
LLFA  Lead Local Flood Authority
WRA  Water Resources Act 1991

USEFUL LINKS

Highways Act 1980:

Water Resources Act 1991:

Land Drainage Act 1991:

EA - ‘Living on the Edge’ a guide to the rights and responsibilities of riverside occupation:

EA - Prepare your Property for Flooding:
How to reduce flood damage Flood protection products and services
https://www.gov.uk/government/publications/prepare-your-property-for-flooding

Northamptonshire County Council Flood and Water Management Web Pages:
http://www.floodtoolkit.com/

Northamptonshire County Council Local Flood Risk Management Strategy:

Flood and Water Management Act 2010

USEFUL CONTACTS

Northamptonshire County Council

Highways:

Tel: Street Doctor (Highways) 0300 126 1000 (24hrs)

Website: http://www.northamptonshire.gov.uk/en/councilservices/Transport/roads/streetdoctor/

Email: highways@northamptonshire.gov.uk

Emergency Planning:

Tel: 0300 1261012

Email: emergencyplanning1@northamptonshire.gov.uk

Flood and Water Management Team:

Tel: 01604 366014 (Mon-Fri, 9am - 5pm)

Email: floodandwater@northamptonshire.gov.uk

Environment Agency:

General Tel: 08708 506 506 (Mon-Fri 8-6) Call charges apply.

Incident Hotline: 0800 807060 (24 hrs)

Floodline: 0345 988 1188

Email: enquiries@environment-agency.gov.uk

Website: www.environment-agency.gov.uk
Anglian Water
Emergency Tel: 03457 145145 (select option 1)
Website: http://www.anglianwater.co.uk/household/water-recycling-services/sewers-and-drains/

Borough Council of Wellingborough
Tel: 01933 229777
Email: generalenquiries@wellingborough.gov.uk

Earls Barton Parish Council
Email: theclerk@earls Barton.gov.uk
Website: http://www.earls Barton.gov.uk

The Flood Toolkit “Who is responsible” page:
http://www.floodtoolkit.com/contacts/
APPENDIX A

Location Plan & Incident Plan
APPENDIX B

Flood Map for Planning
Northamptonshire County Council Flood Toolkit
Flood Map for Planning

- This area could be flooded from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year, if there were no flood defences. For planning and development purposes, this is termed Flood Zone 3.
- This area is likely to be affected by a major flood, with up to a 0.1% (1 in 1000) chance of occurring each year. For planning and development purposes, this is termed Flood Zone 2.
- This area is unlikely to flood from rivers. There is less than a 0.1% (1 in 1000) chance of flooding occurring each year. For planning and development purposes, this is termed Flood Zone 1.
- Flood defences, built to protect against river flooding with a 1 percent (1 in 100) chance of happening each year, (not all will be shown, these are being added gradually through updates).
- Areas benefiting from flood defences (not all will be shown; these are being added gradually through updates).

The maps are intended for guidance, and cannot provide details for individual properties. The maps have been produced by the Environment Agency, using information from Northamptonshire County Council where available/appropriate. You can view this information and more on the Environment Agency’s “What’s In Your Back Yard” map service.

- The Risk of Flooding from Surface Water map shows the areas that are at risk from surface water flooding.
- The Risk of Flooding from Rivers map shows the extent and likelihood of flooding from rivers taking into account any flood defences.
- The Flood Map for Planning shows Flood Zones without flood defences, as required for land-use planning purposes.

APPENDIX C

Risk of Flooding from Surface Water
Northamptonshire County Council Flood Toolkit
Risk of Flooding from Surface Water

- This is an area that has a HIGH chance of flooding from surface water. This means that each year, this area has a chance of flooding of greater than 1 in 30 (3.3%).
- This is an area that has a MEDIUM chance of flooding from surface water. This means that each year, this area has a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%).
- This is an area that has a LOW chance of flooding from surface water. This means that each year, this area has a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%).
- This is an area that has a VERY LOW chance of flooding from surface water. This means that each year, this area has a chance of flooding of less than 1 in 1000 (0.1%).

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- The Flood Map for Planning shows Flood Zones without flood defences, as required for land-use planning purposes.

APPENDIX D

Environment Agency Standard Notice
APPENDIX E

Residents photographs from flood incident 16th September 2015
Internal room at The Square
APPENDIX F

Parish Council photographs from flood incident 14th September 2015
Broad Street and Churchill Road, view east to west.

South side of Broad Street, opposite Churchill Road.
Water flowing out of kerb offlet gully on north side of Broad Street.

South side of Broad Street, opposite Churchill Road.
APPENDIX G

Photographs from flood incident investigation 16th October 2015
View from High Street to The Square, with blocked road gully.

View from West Street to The Square, with leaf fall at kerb offset gully.
View from Station Road to The Square and High Street.

Kerb and footway arrangement at The Square.
Kerb and footway arrangement at The Square.

Areas of footway flooding on south side of Broad Street, opposite Churchill Road.
Areas of footway flooding on south side of Broad Street, opposite Churchill Road.

Example of roof drainage system discharging to blocked gully in the highway, Broad Street.
Example of blocked road gully, High Street.

Example of leaf fall over kerb offset gully, West Street.
Example of private paved area with limited provision of, and un-maintained, drainage to prevent run-off to highway. West Street.

Example of private paved area without drainage to prevent run-off to highway. Tebutt’s Yard, off High Street.