



## **APPENDIX D**

### **SECTION 19 REPORT – FLOODING IN GOTHAM ON 15 JUNE 2016**

#### **Introduction**

Section 19 of the Flood and Water Management Act 2010 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 (RMAs) have relevant flood risk management functions.
  - (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.
  - (b) Notify any relevant risk management authorities.
3. The aim of this report is to determine the causes of the flooding and to identify which RMAs had relevant flood risk management functions during the flooding in June 2016 and whether they have exercised, or propose to exercise, their risk management functions (as per section 19 (1) of the Flood and Water Management Act 2010).
4. The Risk Management Authorities for this area of Nottinghamshire are the Environment Agency (Derbyshire, Nottinghamshire and Leicestershire), Rushcliffe Borough Council, Nottinghamshire County Council as Lead Local Flood Authority and Highways Authority, Severn Trent Water Ltd. and The Trent Valley Internal Drainage Board (regulation of the ordinary watercourses to the east of Gotham).
5. It should be noted that this duty to investigate does not guarantee that flooding problems will be resolved and cannot force others into action.

#### **Background**

6. On Wednesday 15th June 2016 and following a few days of continual rainfall, parts of Nottinghamshire were subjected to intense periods of heavy rainfall events. In one hour on that date Gotham experienced 34mm of rain and as a result of this several parts of Gotham suffered major flooding. Between the 10<sup>th</sup> and 16<sup>th</sup> June Gotham experienced 111mm of rain compared to the average June rainfall of 60mm. 17 properties have been recorded by Rushcliffe Borough and Gotham Parish Councils as having suffered internal flooding as well as roads and car parks affected. These numbers are being validated by the relevant RMAs.

7. The quickly developing and unusual nature of the weather conditions on the day made forecasting and preparing for the event difficult.
8. Gotham has been subjected to flooding on a number of other occasions although the previous events are not subject to this report.
9. In response to the flooding events Rushcliffe Borough Council, Nottinghamshire County Council, Severn Trent Water Ltd and British Gypsum deployed services to provide assistance to the public.
10. The watercourse catchment area as defined by the Environment Agency constitutes the Humber, Lower Trent and Erewash, South Nottinghamshire B and the Fairham Brook.

### Summary of flooding and its causes



Map 1 – Areas affected by flooding

11. Proactive investigations and remedial work has already begun in some locations by the RMA's to identify issues and clear and repair surface water systems to ensure residents are better protected from flooding.
12. The main sources and contributing factors of the flooding have been identified as follows:
  - a) Localised areas experienced extreme rainfall. This rainfall could not reasonably be accommodated by the design standards of the various drainage systems.
  - b) Some riparian owned watercourses had not been maintained.

- c) There is a large area of hillside which falls down towards Gotham. A significant number of the properties have flooded as they are located along the natural flow paths for rainfall.
- d) The local geology is such that a permeable band of gypsum is underlain by an impermeable band of mudstone creating a flow path.
- e) Historic drainage features, including ponds and ditches have been lost from the catchment over the years.
- f) Highway gully cleaning may be affected where vehicles are parked over the gully at the time of the cleaning route being made so the gully does not get emptied. NCC and VIA are actively working closely with local communities who are at most risk to improve accessibility during cleansing operations.

### **Generic factors**

- 13. The impermeable nature of the ground following a period of rain which saturated the ground is a contributory factor but it should also be noted that there has been a trend over the past decade for the front gardens of properties to be converted from gardens to hard standing which in itself adds to the overall level of surface water runoff. Recent changes in planning legislation now requires planning permission be sought by residents for any future such action unless they are installing permeable surfacing. In addition historic development has contributed to the overall level of surface water runoff as well as interfering with the natural flow routes.

### **Summary of causes of the flood**

- 14. Under normal weather and rainfall conditions, i.e. those that do not exceed the various drainage design standards, the majority of the overall surface water drainage system in Gotham has the capacity to cope, ensuring water is drained without causing flooding. However the extreme rainfall events of the 15th June 2016 led to surface water runoff that was far in excess of what the systems have been designed to cope with. It is evident from investigating the flood that there is no single cause in terms of a failure of the established drainage systems other than those of a natural and uncontrollable nature namely the amount of rainfall, topography of the catchment and the nature of the ground, but the lack of maintained ditches and culverts added to the flooding problems.

### **Risk Management Authorities and their responsibilities**

- 15. Nottinghamshire County Council
  - a) Lead Local Flood Authority
    - i. Investigate significant local flooding incidents and publish the results of such investigations.
    - ii. Play a lead role in emergency planning and recovery after a flood event.
    - iii. If a flood happens, all local authorities are 'category one responders' under the Civil Contingencies Act. This means they must have plans in place to respond to emergencies and control or reduce the impact of an emergency. LLFAs also have a new duty to determine which risk management authorities have relevant powers to investigate flood incidents to help

- understand how they happened, and whether those authorities have or intend to exercise their powers.
  - iv. By working in partnership with communities, LLFAs can raise awareness of flood risks.
  - v. LLFAs should encourage local communities to participate in local flood risk management.
- b) Highway Authority
  - i. Maintenance of the public highways.
- c) Rushcliffe Borough Council
  - i. Local Authority with Emergency Planning.
- d) Severn Trent Water Ltd.
  - i. Maintenance of the public sewerage system.
- e) Environment Agency
  - i. Responsible for the regulation of main rivers.

### **Risk Management Authority Responses to Flood**

16. The following lists the actions taken by each RMA in response to the flooding both in the immediate aftermath as well as in the longer term:
- a) Nottinghamshire County Council
    - i. Provided emergency response crews to assist in management of flooding event.
    - ii. Initiated and led the S19 Flood Investigation.
  - b) Rushcliffe Borough Council
    - i. Initiated Emergency Planning procedures.
    - ii. Provided emergency response crews to assist in management of flooding event.
    - iii. Actively engaged in S19 Flood Investigation.
  - c) Severn Trent Water Ltd.
    - i. Provided emergency response crews to assist in management of flooding event.
    - ii. Actively engaged in S19 Flood Investigation.
    - iii. Investigating hydraulic operation and standards of public sewers known to have surcharged during the event.
  - d) Environment Agency
    - i. Actively engaged in S19 Flood Investigation.
    - ii. Undertook rainfall analysis of the June 2016 event to provide the basis of all flood investigations across the County.
    - iii. Provided flood risk data to assist in the S19 Flood Investigation.

17. The investigation concludes that all risk management authorities have and continue to, exercise their respective functions in response to the flood.

### **Future Actions**

18. The following have been identified as ways of promoting clarity of responsibilities and identifying actions that will ultimately reduce the overall risk and consequence of future flooding in Gotham:
  - a) The County Council to work with communities on resilience measures.
  - b) The County Council to pursue feasibility and design of further flood alleviation measures and secure funding for implementation where necessary.
  - c) The County Council will consult with the community on any future Flood Risk Management proposals.
  - d) Severn Trent Water to investigate the hydraulic capacity of their assets.
  - e) The identified areas to have an increased regime of maintenance for the surface water systems.
  - f) The local community, parish council and riparian owners including Nottingham City Transport to build on the good works done so far to clear obstructions and work in partnership to maintain their assets.
19. Working with the communities at risk and educating them on resilience measures and emergency plans will help prepare them for future events.
20. Further partnership working between the RMAs will also help in being prepared for any future issues, with clarity of roles and responsibilities shared amongst all parties to ensure an effective response and preparedness for future events.