



Investigation Report into the flooding in Holt on the 1st August 2020.

Report Reference: FIR064

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(a) Flooding incidents and causes

This report includes the internal flooding of one property on Grove Lane, Holt on the 1st August 2020.

The flooding that occurred was caused by

- Surface run-off from rainfall made its way onto the highway and flowed along the road network along overland flowpaths on which the affected property is adjacent to.
- Run-off from significant rainfall was directed towards the surface water drainage network. These flows could not be accommodated as the system was already overloaded and of insufficient capacity. This directed flood water towards the affected property that is situated lower than the highway.

(b) Key recommendations

Our conclusion is that:

Risk Management Authorities should:

- Communicate with affected residents where their assets have given rise to the flooding of properties
- Review the appropriateness of their response to flooding
- Determine the integrity and/or capacity of their assets where they have contributed to the flooding of properties to understand the systems role in accommodating rainfall events as well as mitigating flooding

Property owners of affected properties should:

- Determine if it is appropriate for them to protect their buildings through flood protection measures
- Seek their own legal advice if they are concerned about the responsibilities and liabilities of themselves and/or others

Norfolk County Council should:

- Review and monitor the delivery of recommendations within this and other relevant flood investigation reports
- Norfolk County Council will review the capacity & level of maintenance required to sustain the design efficiency of their drainage systems that serve the flooding location in line with the risk identified. Norfolk County Council should assess whether the capacity of the current system is able to provide protection that aligns with British standards. This may require a survey of the system being undertaken.

- Norfolk County Council will consider options that would direct water away from the property.

Justification for Flood Investigation

The purpose of this report relates to Section 19 of the Flood and Water Management Act 2010. This legislation sets out that the County Council, in its role as Lead Local Flood Authority for Norfolk, should investigate the role and response of organisations to significant flooding incidents. Significant flooding is deemed to be those incidents that impact upon people, property and infrastructure.

The Norfolk Local Flood Risk Management Strategy Policy UC2 (Flood Investigation) sets out the thresholds the Lead Local Flood Authority will apply to its formal flood investigation role. This states an investigation will be undertaken where it is determined that;

- (a) There is ambiguity surrounding the source or responsibility for a flood incident, and/or;
- (b) There is cause to investigate the flood incident, due to either its impact, or consequence

In judging the impact or consequence of a flood event Norfolk County Council uses the criteria set out below;

- Any risk to loss of life or serious injury.
- One or more residential or business property flooded internally.
- One or more critical services/installations and vulnerable person's properties flooded internally; and/or rendered inoperable or their functions severely compromised due to the access to the premises being impassable; and/or resulting in a loss of service impacting on the local community.
- Any section of a national category 3 road or above made impassable due to flooding; and/or flooding to priority 1 and 2 gritting routes.
- Flooding adversely impacting a rail link by making it impassable.

It was deemed necessary to complete a formal Investigation Report into the flooding in Broadland Various in 2013-2017 as:

- multiple residential properties were internally flooded.
- multiple commercial properties were internally flooded.

This impact met Norfolk County Council's threshold for triggering the undertaking of a formal flood investigation.

The flood investigation report aims to:

- provide a transparent and consistent review of recent flooding.
- identify those organisations and individuals who have responsibility to manage the causes of the flooding.
- identify what their response has been or will be to the flooding.
- make recommendations as to how the flood risk could be mitigated or reduced.
- provide new evidence of the level of risk faced by communities in Norfolk that can be used in current funding bids in support of flood mitigation schemes.

Mitigation measures include property level protection: reinstating lost drainage features: reviewing or increasing maintenance regimes and increasing the capacity of the drainage network.

The flood investigation report cannot:

- Resolve the flooding issues or provide designed solutions.
- Force authorities to undertake any of the recommended actions.

Flood incidents in Holt.

One incident of internal flooding has been assessed as part of this investigation. This incident is detailed in the table below.

On the 1st August 2020, 1 property was internally flooded on Grove Lane, Holt. This incident was reported by:

- A resident via an online flood report form on the 26th August 2020.

The response to the incident was as follows:

- Norfolk County Council carried out maintenance work to the highway drainage system after the incident.
- The company responsible for the new development adjacent to Grove Lane have installed additional drainage to help alleviate risk at this location.

Recent rainfall within the catchment

This report seeks to draw on rainfall data to ascertain the intensity of the rainfall events experienced in the catchment that led to the flooding. This analysis is useful in assessing (in broad terms) if the design capacity of drainage systems within the affected areas was exceeded.

Norfolk County Council has sought to use data from rain gauges where incidents of flooding are located within a 2.5 km radius of the instrumentation. This distance meets the requirements of British Standards and aims to capture localised rainfall patterns. Where there is no available data within this radius this will be stated.

The affected property is not within 2.5km of a rainfall gauge.

Historic flooding incidents within the catchment

- The resident reported an external flood to the Flood and Water Management team on 21st June 2016
- The resident has reported several incidents of external flooding on the road to the Highways department since 2014.

Causes of flooding within the catchment and recommendations

The findings of the investigation are detailed on the following pages. There is a map for each address affected. The maps detail the causes that led to flooding within the catchment as well as when and where they were experienced. It also sets out which Risk Management Authorities have responsibility to help manage the causes of the flooding. The maps set out recommendations to mitigate the causes and impacts of the flooding experienced within this catchment.

Grove Lane, Holt

Location: Holt

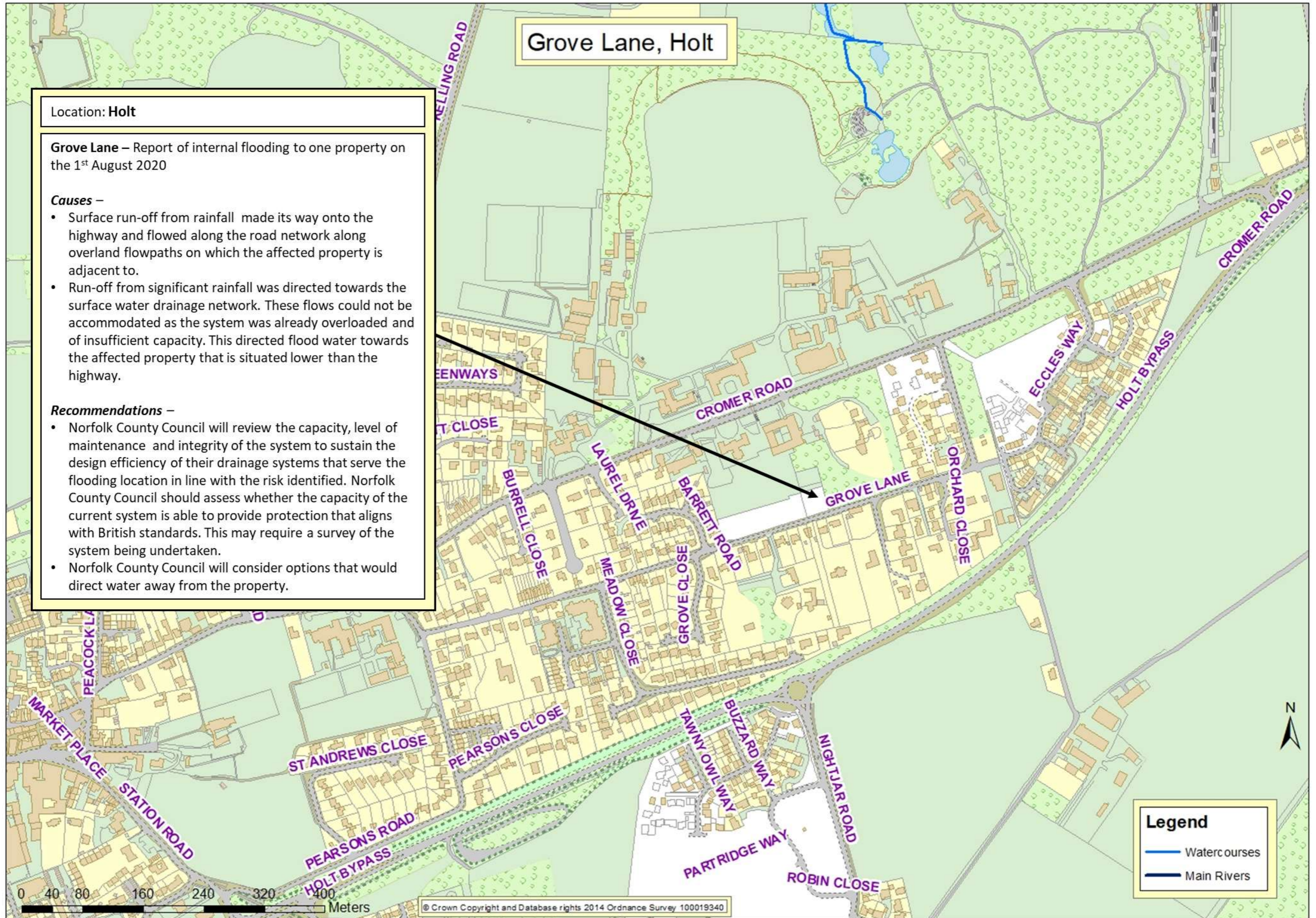
Grove Lane – Report of internal flooding to one property on the 1st August 2020

Causes –

- Surface run-off from rainfall made its way onto the highway and flowed along the road network along overland flowpaths on which the affected property is adjacent to.
- Run-off from significant rainfall was directed towards the surface water drainage network. These flows could not be accommodated as the system was already overloaded and of insufficient capacity. This directed flood water towards the affected property that is situated lower than the highway.

Recommendations –

- Norfolk County Council will review the capacity, level of maintenance and integrity of the system to sustain the design efficiency of their drainage systems that serve the flooding location in line with the risk identified. Norfolk County Council should assess whether the capacity of the current system is able to provide protection that aligns with British standards. This may require a survey of the system being undertaken.
- Norfolk County Council will consider options that would direct water away from the property.



Update

In response to this flooding event and the above recommendations, the following actions have been undertaken by Norfolk County Council:

- Maintenance has been carried out on a Highways drain in The Grove opposite the affected property. It has been replaced and improved to provide additional capacity.
- Additional kerbing along the frontage of the property has now been installed
- Highways intend to install an additional soakaway under a section 100 to improve the drainage within the highway.

Disclaimer

Although every effort has been taken to ensure the accuracy of the information contained within the pages of the report, we cannot guarantee that the contents will always be current, accurate or complete.

This report has been prepared as part of Norfolk 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.

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

Norfolk County Council expressly disclaims 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 Norfolk County Council expressly disclaims 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.

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Appendix A - Key definitions and responsibilities

What is flooding?

Section 1 of the Flood and Water Management Act 2010 states that: "Flood" includes any case where land not normally covered by water becomes covered by water. In addition, this section adds the caveat: "But "flood" does not include – (a) a flood from any part of the 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 (b) a flood caused by a burst water main (within the meaning given by Section 219 of the Water Industry Act 1991)."

What is internal and external flooding?

For the purposes of this report, properties that have internally flooded are those where it is considered that water has entered the fabric of the building;

- Basements and below ground level floors are included.
- Garages are included if in the fabric of the building. Garages adjacent or separate from the main building are not included.
- Occupied caravans are included but not tents.

External flooding included those properties where water has entered gardens or surrounding areas which restricts access, affects the highway or where flooding has disrupted essential services to the property such as sewerage. For businesses this includes those where the flood waters are directly preventing them trading as usual.

What is Local Flood Risk?

Local Flood Risk is defined by the Flood and Water Management Act 2010 as being flood risk from surface runoff, groundwater and ordinary watercourses.

- 'Surface runoff' means 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, drainage system or public sewer.
- 'Groundwater' means all water which is below the surface of the ground and in direct contact with the ground or subsoil.
- 'Ordinary Watercourse' means a watercourse that does not form part of a main river and includes a reference to a lake, pond or other area of water which flows into an ordinary watercourse.

Roles and Responsibilities of Risk Management Authorities

Below is a short summary of those groups and Risk Management Authorities ("RMAs") that have a role in managing flooding within Norfolk. The listing of responsibilities includes those duties or powers that directly relate to managing the flood incidents or consequence. All RMAs have a duty to cooperate with other RMAs.

1. Norfolk County Council (as Lead Local Flood Authority)

- Duty to investigate significant flooding from any source.
- Duty to maintain a register of structures or features which affect flood risk from all sources.
- Power to undertake works to manage flood risk from surface run-off and groundwater.
- Powers to regulate activities on ordinary watercourses outside of Internal Drainage Board areas.
- Duties as a Category 1 Responder for Emergency Planning and the Fire & Rescue Service.

2. District Councils

- Powers to undertake works on ordinary watercourses outside of IDB areas.

- The Local Planning Authority for their District area and determine the appropriateness of developments and their exposure and effect on flood risk.
- Duties as a Category 1 Responder for Emergency Planning.

3. Internal Drainage Boards (“IDBs”)

- A duty to act in a manner consistent with the national and local strategies and guidance when exercising FCERM functions.
- Duty to act in a manner consistent with Local Flood Risk Management Strategies when exercising other functions that may affect flood risk.
- Powers to regulate activities on ordinary watercourses within IDB areas.
- Exercise a general power of supervision over all matters relating to the drainage of land within their district.
- Powers to undertake works on ordinary watercourses within IDB areas.

4. Highway Authorities (Norfolk County Council / Highways England)

- Powers to undertake works to manage water on the highway and to move water off the highway.
- Enforcement powers to unauthorised alterations, obstructions and interferences with highway drainage.
- Have responsibilities for culverts vested in the highway. Currently NCC discharges its responsibilities associated with bridges and culverts (whether as owner or highway authority) through the inspection of condition (undertaken by the Bridges team) and through maintenance activity (delivered on a as needs basis by the relevant Highways area team).

5. Water Companies

- Undertake cost beneficial capital schemes to alleviate or eliminate flooding where the flood event is associated with a failure of their assets.
- Duty to provide, improve, maintain and operate systems of public sewers and works for the purpose of effectually draining an area.
- Are responsible for flooding from their foul, combined and surface water sewers, and from burst water mains.
- Maintain ‘At Risk Registers’ for Ofwat that record properties that have flooded from public foul, combined and surface water sewers and that are at risk of flooding again.
- Water companies respond to reports from the public of flooding associated with their assets and determine an appropriate response in line with their standards or customer service.
- Duties as a Category 2 Responder for Emergency Planning.

6. Riparian Owners

- Duty of care towards neighbours upstream and downstream, avoiding any action likely to cause flooding.
- Entitled to protect their properties from flooding.
- May be required to maintain the condition of their watercourse to ensure that the proper flow of water is unimpeded.