North Lincolnshire Council

Flood & Water Management Act 2010
Section 19 Flood Investigation Report

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Location: Doncaster Road, Gunness, DN15 8TG

Date report of flooding received: **Tuesday 22nd November 2016**
Date assessed as necessary/appropriate for investigation: **Thursday 30th March 2017**
Investigating and reporting Officers: **Sam Cross and Rod Chapman**
Date of publication and referral to relevant RMA: **September 2017**

This document has been prepared by North Lincolnshire Councils Flood Risk and Drainage Team as the Lead Local Flood Authority under Section 19 of the Flood and Water Management Act 2010, with the assistance of:

North Lincolnshire Council Highways
Severn Trent Water
Scunthorpe and Gainsborough WLMB

The findings in this report are based on the information available to NLC at the time of preparing the report. NLC expressly disclaim responsibility for any error in or omission from this report. NLC does not accept any liability for the use of this report or its contents by any third party.

For further information or to provide comments, please contact us at LLFAdrainageteam@northlincs.gov.uk

Executive Summary

A heavy rainfall event on Monday 21st November 2016, combined with a temporary blockage in a foul system in the rear gardens of properties on Doncaster Road, Gunness resulted in the internal flooding of 5no properties. The blockage was cleared by STW the day after the incident was reported, in accordance with their response times

Following this event, NLC and STW carried out extensive investigations into the full cause of the flooding. All systems were jetted and cleared as part of the investigation.

No immediate capital upgrade of either STW or NLC assets was deemed necessary. The location remains to be on a programme of both routine and wet weather inspections.

1. INTRODUCTION

1.1 LLFA investigation

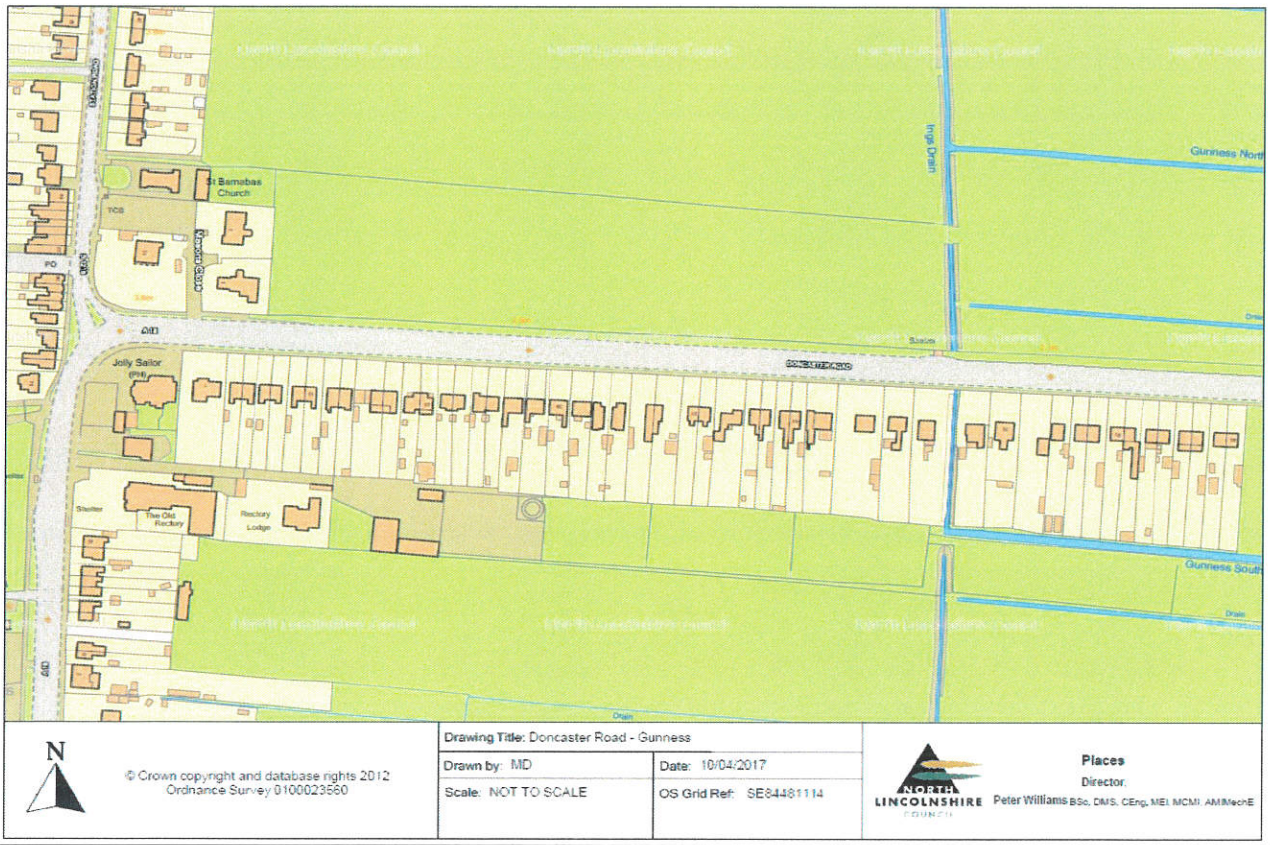
In accordance with Section 19 of the Flood and Water Management Act 2010, the Lead Local Flood Authority must, to the extent it considers necessary, or appropriate, investigate: which risk management authorities have relevant flood risk management functions and whether each of those risk management authorities has exercised or is proposing to exercise those functions in response to the flood.

This was initially not considered to be significant criteria to trigger a S19 Report due to the flooding being caused by a temporary blockage. However, Severn Trent reported surface water from the highway may have been a contributing factor which caused the flooding. As such North Lincolnshire Council determined that a S19 Report was considered necessary and appropriate.

Investigation into all existing drainage systems was carried out, including camera surveys, and all incoming systems were identified. The topography of the land was also taken into consideration.

1.2 Site Location

Doncaster Road
Gunness
North Lincolnshire
DN15 8TG



1.3 Drainage Systems

Foul Water: There is a 150mm/225mm diameter foul drain than runs in the rear garden of various properties on Doncaster Road. It then runs into the highway where it is subsequently pumped to the west via a 150mm diameter foul rising main. It then enters a system further north east within the highway, before discharging into the STW sewage works by the River Trent.

Surface Water: There is a 300mm/450mm diameter surface water drain that runs in the highway to the front of the properties, which is owned and maintained by North Lincolnshire Council Highways. It serves a number of highway gullies, both in road and footway. It discharges into an open watercourse (culverted for a section) between properties, known as 'Gunness South Drain', which is maintained by Scunthorpe and Gainsborough Water Level Management Board.

2. FLOODING HISTORY

2.1 Previous Flooding Incidents

Properties in the vicinity were flooded during 2007 due to the high intensity rainfall and saturated ground. The whole of the North Lincolnshire area was affected during this event.

There have been requests for sandbags due to flooded gardens in other high intensity storms in 2008 and 2012.

2.2 The Flood Incident Being Investigated

It is has been recorded that 5no properties suffered internal flooding with foul water. Numerous other properties suffered external flooding to their rear gardens with foul water.

The source of the flood water was a combination of the intense rainfall and the surcharged foul water system, which suffered a blockage of siltation and sanitary products.

2.3 Rainfall or Event Analysis

There was prolonged and intense rainfall event during the time of the incident. We have no indication of exact storm intensity.

3. POSSIBLE CAUSES/INFRASTRUCTURE CONDITIONS

3.1 Culverts and Piped drains

Foul Drains: There was a significant blockage of siltation and sanitary products in the foul system during the incident. STW reported that the foul drain did not appear to have any

structural defects. Upon investigation it was found that some property surface water roof waste was connected into the foul system. This was confirmed via dye testing.

There is a consented Combined Sewer Outfall (CSO) into the culverted section of drain between the properties. This was not required to operate during the flooding incident as it was downstream of the blockage. The specific blockage had not been reported previously to STW prior to the event.

The blockage was identified to be within the foul drain within the rear garden of property No.79.

Surface Water Drains: There was a build-up of siltation in the highway surface water drain during the time of the incident. When investigating this upon the time of the incident, NLC acknowledged there was a build up siltation at the outfall, but the drain was still running and discharging into the IDB system.

This drain had last been jetted / cleansed 2 years prior to the event, in October 2014, and has subsequently been jetted / cleansed since the incident. It has been CCTV surveyed and found to be in sound condition.

The IDB reported that the culverted section between properties was lightly silted, but reported the culvert was of sufficient capacity to convey flows. The culvert is on a regular inspection regime.

3.2 Open Watercourses

There is an IDB open watercourse that runs along the rear of the properties known as 'Gunness South Drain'

3.3 Other infrastructure

The foul water pumping station maintained by Severn Trent Water appeared to be in sound condition. STW report it was upgraded in 2016. The pumping station was running for 26 hours and did not fail.

3.4 Initial systems appraisal

Wet Weather walkover survey carried out by NLC, visually inspecting flows in wet weather conditions. No overflow from the highway was observed.

Following the incident, discussions with affected residents indicated that there was no significant surface water run-off from the highway entering the front or the rear gardens of the properties during the rainfall event. Residents also noted flood entering properties from the rear. STW operatives however considered that surface water run-off and overland flow was a contributing factor.

A dye survey was carried out to property roof water drains. The rear property roof water from most of the properties was found to discharge directly into the foul drain. The front

property roof water from the properties was found to direct discharge into their gardens, or a private soakaway. During wet weather conditions the direct roof water discharge will add significantly to the volume of flow in the foul drain.

There were no reports that surface water discharged from any existing surface water asset (ie gullies and manholes).

4. RIGHTS AND RESPONSIBLITIES

4.1 Lead Local Flood Authority

The Lead Local Flood Authority carried out investigations into the incident. The Lead Local Flood Authority liaised with relevant risk management authorities and affected residents to compile this report.

4.2 Environment Agency

N/A

4.3 Internal Drainage Boards

Scunthorpe and Gainsborough IDB have responsibility to maintain the outfall watercourse. They have been made aware of the incident and have since carried out inspections of the watercourse.

4.4 Highway Authority

The Highway Authority is responsible for the surface water carrier drain in the highway, and associated road gullies. They are also responsible for the surface water culvert that runs beneath Doncaster Road.

4.5 Water Company

The Water Company (Severn Trent Water) have the responsibility for the foul water sewer in the rear gardens of the affected properties. Previously this would have been privately owned and maintained by residents, until recent legislation changed required water companies to maintain all foul drains that served more than one property curtilage (PDAS).

4.6 Riparian Landowners and Residents

Residents are responsible for surface water discharge from their roof that discharges onto their gardens and soakaways. The status of the roof water into the foul drain is considered to be historic.

The culverted section between properties has been assumed to be riparian, but maintained by the IDB.

5. WORKS UNDERTAKEN OR PROPOSED

Initial reactive works have been carried out by Severn Trent Water and North Lincolnshire Council to jet and cleanse both the foul and surface water drainage. The foul drain blockage was removed the day after the event was reported.

Wet weather walkover survey carried out by NLC, visually inspecting flows in wet weather conditions. Recorded roof water runoff flow directions.

A dye survey was carried out to property roof water drains. The rear property roof water from most of the properties was found to discharge directly into the foul drain. The front property roof water from the properties was found to direct discharge into their gardens, or a private soakaway.

A CCTV survey was carried out on the highway drain and it was found to be in sound condition.

A CCTV survey was carried out on the foul drain and it was found to be in sound condition.

NLC to add the highway drainage systems onto their significant drainage asset register. This will ensure regular future inspections and cleansing if required.

NLC to consider localised raising of kerb levels at dropped crossings based upon ongoing wet weather inspections.

6. SUMMARY AND CONCLUSIONS TO DATE

The flooding was as a result of heavy rainfall, combined with a temporary blockage in the foul system at the rear of the properties.

The blockage on the foul system was cleared the day after the event was reported to STW, in accordance with their response times.

Roof water from the rear of the properties was found to connect directly into the foul system. During wet weather conditions the direct roof water discharge will add significantly to the volume of flow in the foul drain.

There was no conclusive evidence that overland flow from the highway was directly contributing to additional surface water flows in the foul system. This is disputed by STW.

Highway drainage in the vicinity has been jetted and cleansed.

7. RECOMMENDATIONS

STW to consider the capacity of the foul water system considering the existing roof connections.

Periodic inspections of the foul and surface water drains to be continued by NLC and STW.

NLC to add the highway drainage systems onto their significant drainage asset register. This will ensure regular future inspections and cleansing if required.

Further inspections to be carried out during wet weather periods, observing the potential of any highway surface water run-off which may have exacerbated the problem, and consider localised improvements ***if*** necessary.

Signed on behalf of North Lincolnshire Council

Rob Beales
Head of Transport, Highways and Environment

Date of signing

30/08/2017