

Market Harborough Rugby Close

Flood Report

To discuss the flood report contact the Flood Risk Management Team by
e-mail: flooding@leics.gov.uk or phone 0116 305 0001

Investigation:	Rugby Close, Market Harborough
Date of Flooding:	24th December 2013
Revision	Final

Officer:	A Riozzi	Clerk of Works	18/08/2014
Checked:	E Knight	Senior Technician	15/10/2014
Approved:	J McGuinness	Senior Engineer	16/11/2014

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1.1 STATUTORY CONTEXT

Section 19 of the Flood and Water Management Act 2010 (FWMA) states that, on becoming aware of a flood which meets certain predetermined criteria, the Lead Local Flood Authority (LLFA) must undertake a flood investigation in order to determine the relevant flood risk management authorities involved and which flood risk management actions have been (or should be) taken to mitigate future flood risk. Where an authority carries out a formal investigation, it must publish the results.

It was deemed necessary to complete a formal investigation into the flooding incident at Rugby Close on the 24th December 2013. The internal flooding of two properties was reported to the LLFA and the source of the flooding was initially not clear, which met the draft threshold for investigation.

1.2 CAUSE OF FLOODING

The flooding that occurred on Rugby Close, Market Harborough was a reflection of the rainfall that fell over a short period of time, compounded by a blockage of debris within the culvert running from the un-named watercourse parallel to Summers Way to the River Welland. This effectively reduced the capacity of the culvert meaning the watercourse backed up and burst its banks flowing over ground, following natural contours to low points in the area on Rugby Close.

1.3 MAIN FINDING

The culvert was found to be blocked causing the watercourse to back up and burst its banks. The natural flow path for the surface water was through the gardens and properties on Rugby Close. Water flowed in, around and through the houses, returning to the River Welland through gullies on the Highway and the 'public sewer' system.



2.1 LEAD LOCAL FLOOD AUTHORITY INVESTIGATION

Section 19 of the FWMA states:

- (1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers 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

2.2 FLOOD INVESTIGATION CRITERIA

A formal investigation will be carried out if one or more of the following occurs after a flooding event:

- Loss of life or serious injury
- Critical infrastructure flooded or nearly flooded from unknown or multiple sources
- Internal property flooding from unknown or multiple sources

In the following circumstances, discretion may be used to investigate a flooding incident:

- A number of properties have been flooded or nearly flooded
- Other infrastructure flooded
- Repeated instances
- Investigation requested
- Risk to health (foul water)
- Environmental or ecologically important site affected
- Depth/area/velocity of flooding a cause for concern

2.3 RISK MANAGEMENT AUTHORITIES

The following risk management authorities were identified as relevant to the flooding within Harborough:

- Leicestershire County Council – Lead Local Flood Authority
- Leicestershire County Council – Local Highway Authority
- Environment Agency – Midlands East Area
- Harborough District Council
- Anglian Water Services



2.4 NON-RISK MANAGEMENT AUTHORITIES

The following agencies are not prescribed as risk management authorities (RMAs). However, they have a significant involvement in flood risk management:

- Leicester, Leicestershire and Rutland Local Resilience Forum

2.5 FLOODING INCIDENT

It was considered appropriate to complete a formal investigation into the flooding incident at Rugby Close, Market Harborough on 24th December 2013 since at least one property was flooded internally, and the source of the flooding was initially not clear.



3.1 LOCATION

Rugby Close, Market Harborough is situated in the South-East of Leicestershire, within the district of Market Harborough, approximately 17 miles from Leicester. The area immediately around Rugby Close is mainly flat with a slight fall to the north towards the River Welland. The area is semi-rural in nature being a cul-de-sac to the east of Farndon Road with a nature reserve to the west. There is an un-named ordinary watercourse which runs parallel to Summers Way, a tributary to the River Welland.

The River Welland is classified as a 'Main River' which means that the Environment Agency has permissive powers to undertake work to reduce flood risk.

3.2 DRAINAGE SYSTEMS

There are two watercourses within the area being the River Welland, classified as 'Main River' and an un-named ordinary watercourse which is a tributary to the River Welland.

The area is served by a foul and a dedicated storm water public sewer system. These systems are maintained by Anglian Water as the relevant water and statutory sewerage authority. The responsibility for lateral connections onto the main sewer varies and can either be the responsibility of the adjacent landowner or water company (Anglian Water). Further guidance on this is contained within the 'Useful Contacts' section of this report.

Highway Drainage within the immediate area is made up of a number of Highway Gullies with the water conveyed via lateral connections to an Anglian Water surface water system.

The local highway authority is responsible for maintaining highway gullies (drains) and the lateral connections to the public sewer. This is indicated by figure 1 below:

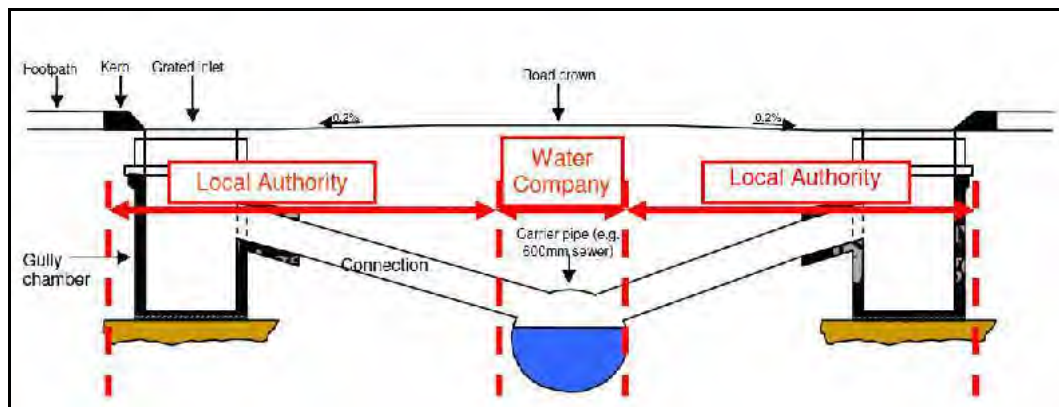


Figure 1: Highway Drainage Responsibilities



4.1 PREVIOUS FLOODING INCIDENTS

There have been no previous flooding incidents recorded in the area of Rugby Close, Market Harborough.

4.2 FLOOD INCIDENT

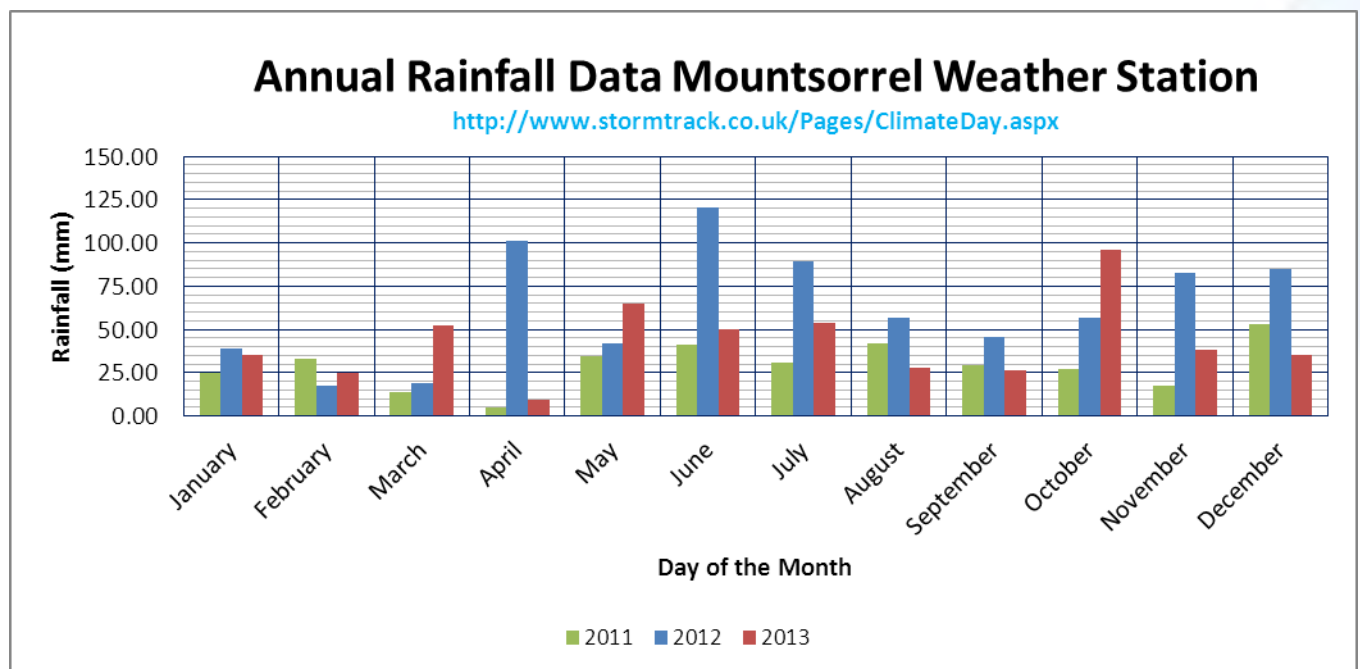
During the period of 21-24th December, there was prolonged rainfall recorded throughout the catchment. Two residential properties suffered internal flooding and the floodwater was running at a significant velocity.

The un-named watercourse running parallel to Summers Way was seen to be backing up causing the watercourse to burst its banks. The secondary flow path was through the gardens and properties on Rugby Close returning through the gullies and Anglian Water system into the River Welland.

4.3 RAINFALL ANALYSIS

In general the rainfall experienced within the East Midlands during the winter of 2013 can be described as typical for the time of year. On 24th December 2013, approx. 4.4 mm rainfall was recorded, at a nearby weather station.

Below graph depicts the annual rainfall at the Mountsorrel weather station 2011 - 2013



5.1 IMPACTS

People and property were affected by the flooding that occurred on December 23rd 2013. The County Council spoke to the affected persons to establish and further quantify the physical effects of the flooding incident.

5.2 HIGHWAY DRAINS

The spacing and location of the gullies on Rugby Close complies with the design criteria for a residential street, as laid out in the '6Cs Design Guide'. These highway gullies are connected into the Anglian Water Ltd adopted surface water sewer in Rugby Close, running in a north-westerly direction to the River Welland.

5.3 PUBLIC SEWER

Within the area immediately outside the affected properties there is both a foul and surface water sewer; these are not thought to have any connection with the flooding at this location.

5.4 UN-NAMED ORDINARY WATERCOURSE

The un-named watercourse running parallel to Summers Way is culverted for approximately 65m. The watercourse was seen to be at a high level, backing up at the culvert and eventually bursting its banks flowing over ground entering two properties on Rugby Road.

Following further investigation after the incident, it was found that the culvert was blocked by debris causing the watercourse to back up and burst its banks.

5.5 THE RIVER WELLAND

The River Welland, North-West of Rugby Close is designated by the Environment Agency as Main River. The river was running at a high level on the day of the flooding incident.

5.6 EXTENT OF FLOODING

The extent of the flooding at Rugby Close followed low contours around the head of the culvert through gardens on Rugby Close entering two properties and returning through road gullies into the Anglian Water surface water system. The public right of way and nearby nature reserve was also flooded in these instances.



6.1 LEAD LOCAL FLOOD AUTHORITY (LCC)

As stated within the introduction section, the County Council as the LLFA has a responsibility to investigate flood incidents under Section 19 of the FWMA.

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 watercourse, as detailed within Section 21 of the FWMA. The register must contain a record about each structure or feature, including the ownership and state of repair.

Whilst the County Council can suggest possible causes of flooding in Leicestershire and make recommendations to ensure flood risk is mitigated as far as possible, the FWMA does not provide the County Council with the mandate or funding to tackle all identified causes of flooding.

The County Council also has powers to serve notice on individuals, requiring them to maintain the flow of ordinary watercourses in accordance with Section 25 of the Land Drainage Act 1991 (LDA)

6.2 HARBOROUGH DISTRICT COUNCIL

HDC has powers under Section 14 of the LDA to undertake flood risk management works on ordinary watercourses (non-Main River), where deemed necessary. Under Section 20 of the LDA, HDC has the powers to (by agreement of any person and at their expense) undertake drainage work which that person is entitled to carry out and maintain.

6.3 ENVIRONMENT AGENCY

The Environment Agency has a strategic overview responsibility under the FWMA as well as permissive powers to carry out maintenance work on Main Rivers under Section 165 of the Water Resources Act (WRA). Main River means all watercourses shown on the statutory Main River maps held by the Environment Agency and the Department of Environment, Food and Rural Affairs, and can include any structure or appliance for controlling or regulating the flow of water into, in or out of the channel.

The Environment Agency has permissive powers to carry out works of maintenance and improvement on these rivers. These powers can be used to undertake works to reduce flood risk where landowners fail to undertake their responsibilities under the WRA.

The Environment Agency can undertake enforcement action where third party asset owners fail to maintain their property/land in appropriate condition. They may consider undertaking maintenance or repair of third party assets in order to safeguard the public interest and where other options are not appropriate.

6.4 HIGHWAY AUTHORITY (LCC)

LCC, in its role as local highway authority, has a duty to maintain the highway under Section 41 of the Highway Act 1980. Section 100 of the Highways Act 1980 also gives the power to prevent water running onto a highway. Further information on the Highways Act 1980 is available via the link identified within the Useful Links section of this report.



6.7 RESIDENTS AND TENANTS

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

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, to more permanent measures such as installing floodgates, raising electrical sockets and fitting non-return valves on pipes.



6.8 COMPLIANCE

There is no evidence to suggest that any of the risk management authorities or stakeholders listed above did not comply with either internal policy or any legal duties.



The flooding that occurred at Rugby Close, Market Harborough was due to a blockage within the culvert where it changes to a smaller diameter, from a brick arch to a concrete pipe which caused the debris to get caught inside of the culvert. This effectively reduced the capacity of the culvert meaning the watercourse backed up and burst its banks, flowing over ground following natural contours to low points in the area on Rugby Close and the nature reserve.



8.1 ANGLIAN WATER

Anglian Water should continue to monitor their network. A particular item of concern is the outfall of the public sewer (surface water) which appears to be under water when the river is in full flow. However the system continues to work in these conditions.

8.2 LEAD LOCAL FLOOD AUTHORITY (LLFA)

The LLFA will continue to monitor the locality and revisit when required, and continue to coordinate the management of flood risk and the interaction of RMAs across Leicestershire.

8.3 LOCAL HIGHWAY AUTHORITY (LCC)

The Highway Authority should continue routine maintenance to check the gullies and lateral connections remain in good working order. If deemed necessary consideration should be given to utilising powers under Section 100 of the Highways Act 1980 to prevent water flowing on to a highway.

8.4 HARBOROUGH DISTRICT COUNCIL (HDC)

HDC to continue to consult with the EA and LLFA as required in respect of planning applications for new developments to reduce flood risk. As an act of good will, Harborough District Council have offered to install a grill at the inlet to the culvert to reduce the likelihood of the culvert blocking in the future.

8.5 THE ENVIRONMENT AGENCY (EA)

In some circumstances watercourse maintenance can reduce the effect of flooding and improve land drainage. The Environment Agency should continue to monitor the River Welland and assess any impacts on local drainage systems.



EA	Environment Agency
LCC	Leicestershire County Council
HDC	Harborough District Council
FIR	Flood Investigation Report
FWMA	Flood and Water Management Act 2010
LDA	Land Drainage Act 1991
LLFA	Lead Local Flood Authority
WRA	Water Resources Act 1991
LIDAR	Light Detection and Ranging
AW	Anglian Water Ltd
FMfSW	Flood Map for Surface Water
RMAAs	Risk Management Authorities

10 USEFUL CONTACTS

10.1 ENVIRONMENT AGENCY

General enquiries 03708 506 506 (Mon-Fri, 8am – 6pm)
Incident hotline 0800 80 70 60 (free phone, 24hours)

10.2 ANGLIAN WATER

Emergencies 03457 145 145 (24hours)
Website: www.anglianwater.co.uk

10.3 LEICESTERSHIRE COUNTY COUNCIL

Highways 0116 305 0001 (24hours)

10.4 LEICESTERSHIRE COUNTY COUNCIL

Lead local flood authority 0116 305 0001 (Mon-Fri, 9am – 5pm)
Email: flooding@leics.gov.uk

10.5 HARBOROUGH DISTRICT COUNCIL

Customer Services 01858 82 82 82

10.6 USEFUL LINKS

OFWAT Guidance on sewers

http://www.ofwat.gov.uk/consumerissues/rightsresponsibilities/sewers/prs_web_sewertransfer

Environment Agency:

<http://www.environment-agency.gov.uk/homeandleisure/>

Harborough District Council Website:

<http://www.harborough.gov.uk/>

Leicestershire County Council Flood Risk Team:

<http://www.leics.gov.uk/flooding>

Local Resilience Forum:

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

Land Drainage Act 1991:

<http://www.legislation.gov.uk/ukpga/1991/59/contents>

Water Resources Act 1991:



Highways Act 1980:

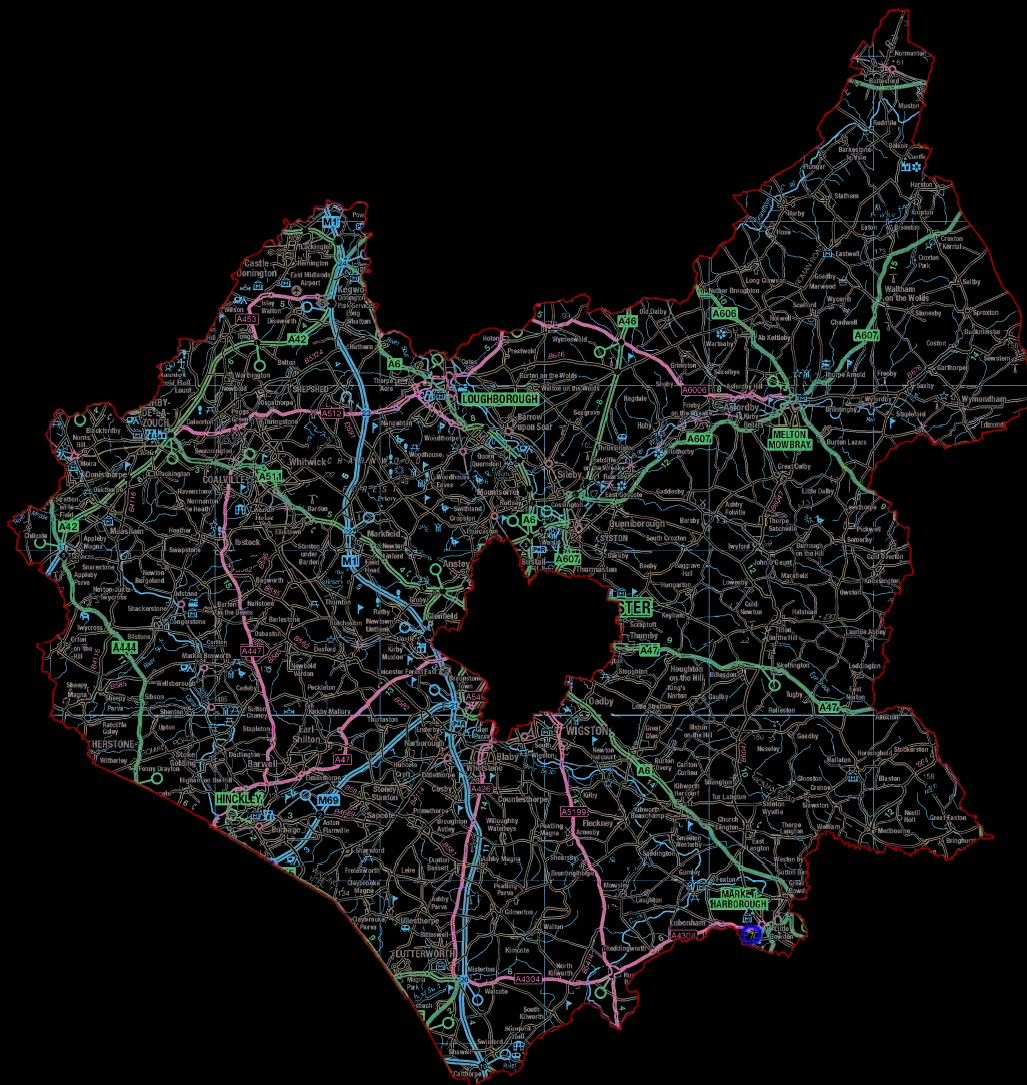
<http://www.legislation.gov.uk/ukpga/1980/66>



APPENDIX A

SITE LOCATION PLAN

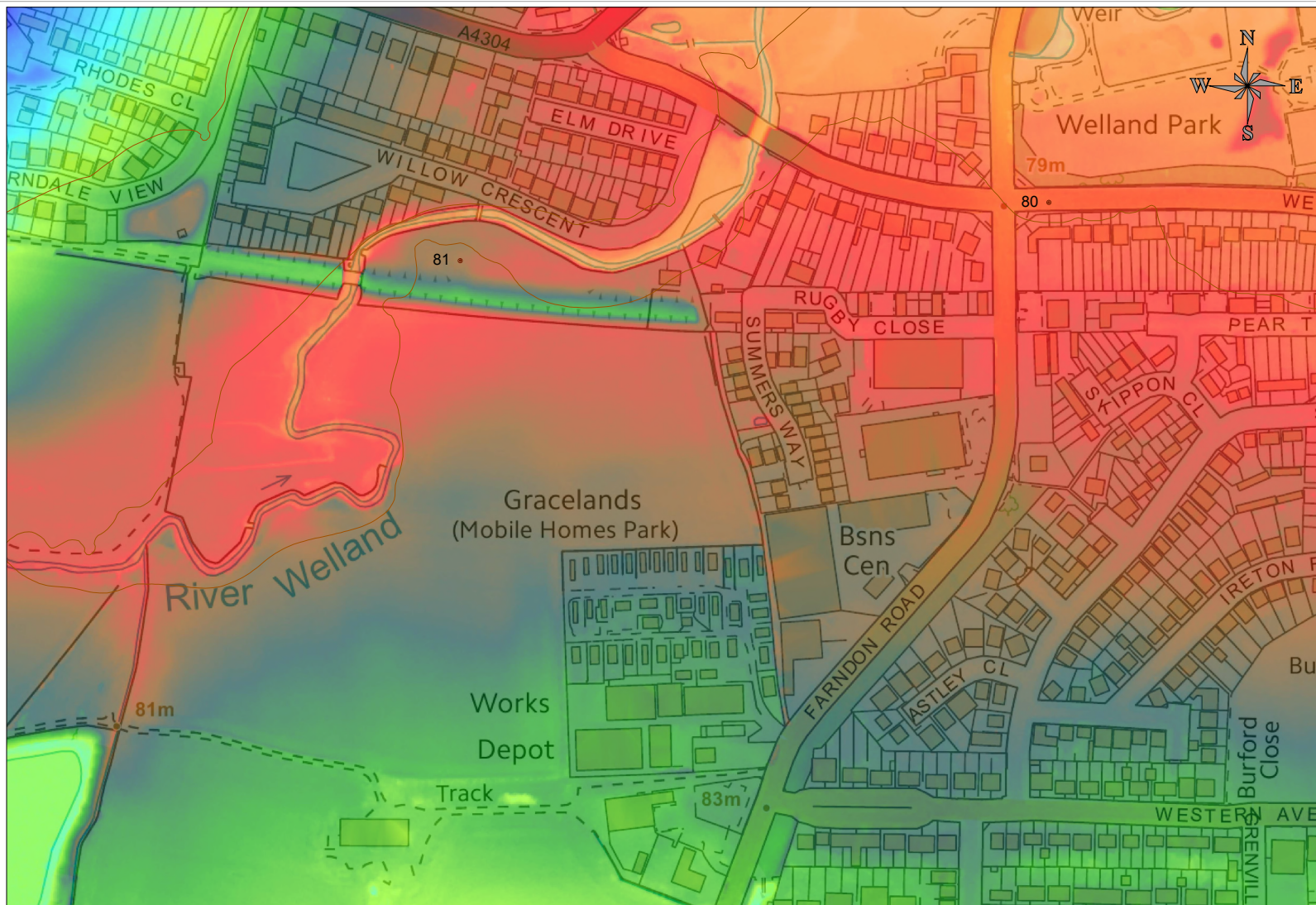




APPENDIX B

LIDAR PLAN



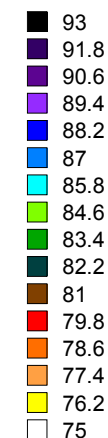


Location Map



Key

Lidar Levels



LEICESTERSHIRE COUNTY COUNCIL ENVIRONMENT AND TRANSPORT

SERVICE:
LEAD LOCAL FLOOD AUTHORITY

TITLE:
**Lidar mapping for
Rugby Close**

LOCATION:
**RUBY CLOSE
MARKET HARBOROUGH**

DRAWING NUMBER 2013-Inv-053-01	SCALE Not To Scale
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CREATED BY: Chris Bramley	DATE: 21-03-2014
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APPROVED BY: Daniel Rawle	SIZE: A4
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E-MAIL: flooding@leics.gov.uk

PHONE: 0116 305 0001	For Internal Use Only
COUNTY HALL · GLENFIELD · LEICESTER · LE3 8RJ	

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This is not a definitive record, but is based on the best available information and is given without warranty. If roadside ditches are present, the normal presumption is that these do not generally form part of the publicly maintainable highway. This plan has been produced in relation to the specified area of enquiry and should not be used for any other purpose, since its accuracy can not be guaranteed.

This map gives an indication of the broad areas likely to be at risk of surface water flooding. It is not suitable for use at an individual property scale due to the method used.



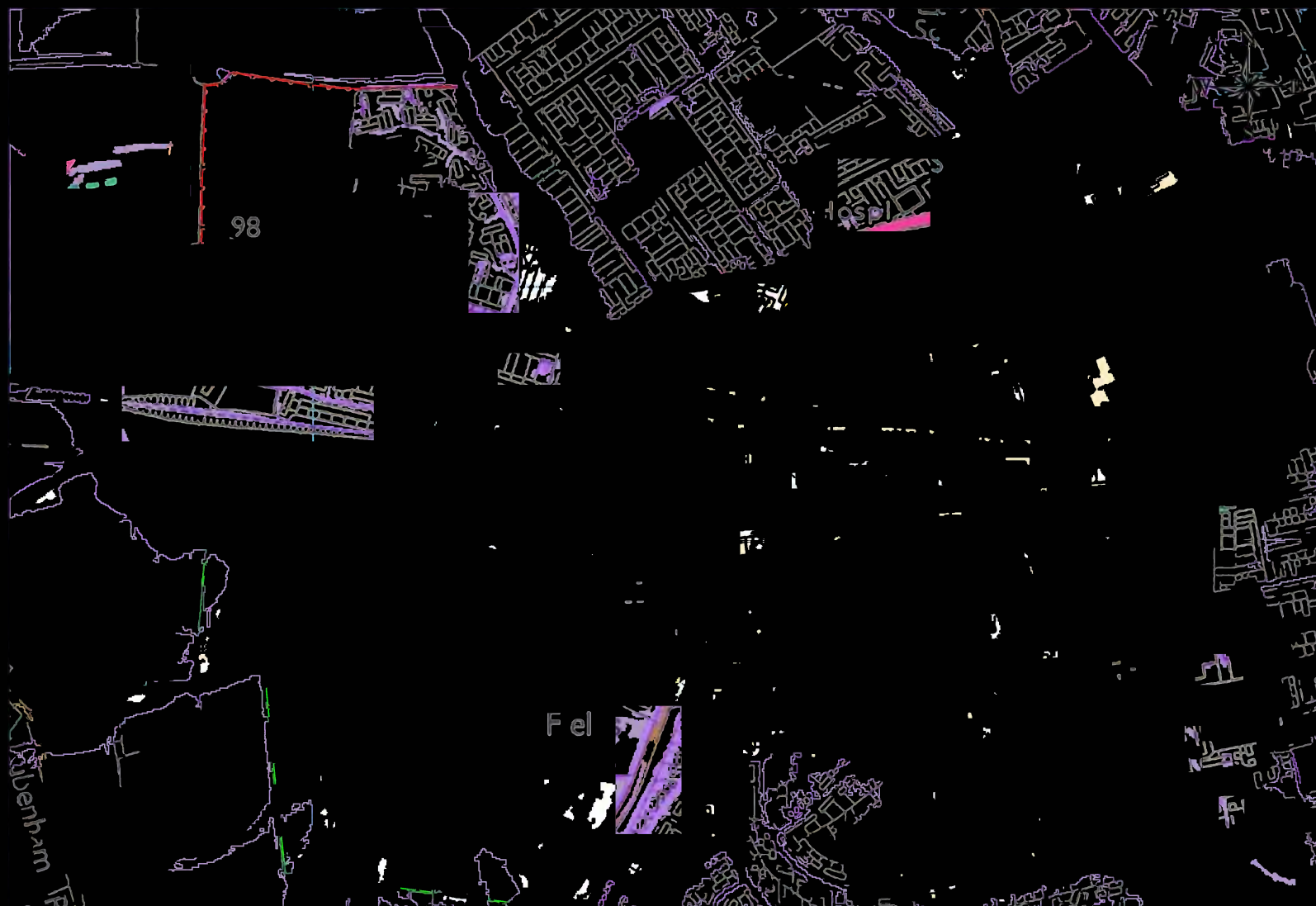
**ENVIRONMENT AND TRANSPORT
DEPARTMENT**

**ON BEHALF OF THE
DIRECTOR**

APPENDIX C

FLOOD MAP FOR SURFACE WATER (FMfSW)





APPENDIX D

ANGLIAN WATER PLAN





Important Information - please read

The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the 'Affected Postcodes.pdf', which can be downloaded from this website.

Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan.

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Duct, Trench



Cabinet



Cabinet



chris.bramley@leics.gov.uk

Rugby Close 1 MH



APPENDIX E

EA STANDARD NOTICE



Standard notice [not for use with Special Data, Personal Data or unlicensed 3rd party rights]



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