

Rockcliffe

Flood Investigation Report



Flood Event 2 January 2018

This flood investigation report has been produced by Cumbria County Council as a Lead Local Flood Authority under Section 19 of the Flood and Water Management Act 2010.

Version	Undertaken by	Reviewed by	Approved by	Date
Draft	Peter Allan	Helen Renyard / Colin Riggs		December 2018
Final	Peter Allan	Helen Renyard	Doug Coyle	February 2021

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Executive Summary

Cumbria County Council as Lead Local Flood Authority (LLFA) has prepared this report with the assistance of other Flood Risk Management Authorities as it considers necessary to do so under Section 19 of the Flood and Water Management Act 2010.

This report examines the flooding of 10 properties along the coast road at Rockcliffe on the 2nd January 2018 (Storm Eleanor). The main cause of the flooding was the tidal surge up the Solway estuary combined with the low pressure weather system of Storm Eleanor. This resulted in 10 dwellings in the Rockcliffe Coast Road / School Lane area suffering from internal flooding.

The report also identifies actions to be taken following the flooding which will assist in reducing the flood risk. However, moving forward the possibility of identifying Flood and Coastal Erosion Risk Management Grant in Aid (FCERM GiA) partnership funding from Defra for a long-term solution should be considered.

Cumbria County Council's LLFA team has worked closely with the Environment Agency and used information from a wide range of sources to compile this report. This includes details from individuals, other authorities, the Rockcliffe community and residents. Whilst best endeavours have been made to be factual, to understand the full scope of the flooding that occurred and the mechanisms influencing it, some information has been used from secondary sources. If this has resulted in incorrect reporting, please inform the LLFA on tel. 01228 221330 or email LFRM@cumbria.gov.uk stating Rockcliffe Report in the title.

Introduction

Under Section 19 of the Flood and Water Management Act (2010) Cumbria County Council, as Lead Local Flood Authority (LLFA), has a statutory duty to produce Flood Investigation Reports for areas affected by flooding. Section 19 of the Flood and Water Management Act 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.

This section of the Act leaves the determination of the extent of flood investigation to the LLFA. It is not practical or realistic for Cumbria County Council to carry out a detailed investigation into every flood incident that occurs in the County, but every incident, together with basic details will be recorded by the LLFA.

Only those with 5 or more properties/businesses involved will have investigations published. An investigation will be carried out, and a report prepared and published by the LLFA when the flooding impacts meet the following criteria:

- where there is ambiguity surrounding the source or responsibility of flood incident,
- internal flooding of one property that has been experienced on more than one occasion,
- internal flooding of five properties has been experienced during one single flood incident and
- there is a risk to life as a result of flooding.

Scope of this Report

This Flood Investigation Report is:

- an investigation on the what, when, why, and how the flooding took place resulting from any flooding event and
- a means of identifying potential recommendations for actions to minimise the risk or impact of future flooding.

This Flood Investigation Report **does not**:

- interpret observations and measurements resulting from this flooding event. Interpretation will be undertaken as part of the subsequent reports,
- provide a complete description of what happens next.

The Flood Investigation Reports outline recommendations and actions that various organisations and authorities can do to minimise flood risk in affected areas. Once agreed, the reports can be used by communities and agencies as the basis for developing future plans to help make areas more resilient to flooding in the future.

For further information on the S19 process and associated documentation, please visit the County Council website at:

https://www.cumbria.gov.uk/planning-environment/flooding/investigations.asp

To provide feedback on the report please email LFRM@cumbria.gov.uk.

Event Background

This section describes the location of the flood incident and identifies the properties that were flooded.

Flooding Incident

Rockcliffe is a village and civil parish in the City of Carlisle district of Cumbria. The properties affected by the flooding include those fronting on to the floodplains of the River Eden and further up School Lane.

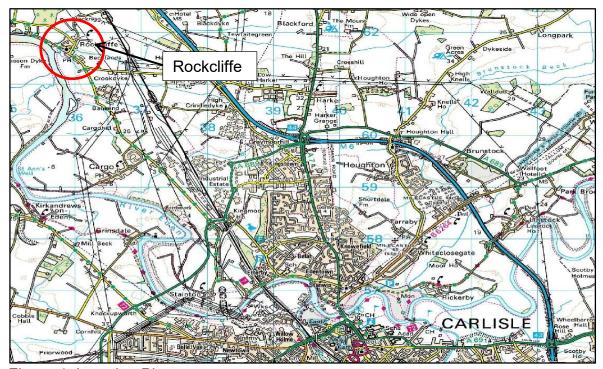


Figure 1: Location Plan

Ten dwellings on the Rockcliffe Coast Road / School Lane are known to have internally flooded during the 2nd January 2018 event.

The evidence gathered demonstrates that the flood event was caused by a tidal surge occurring at the same time as a low pressure system moving in a north-easterly direction which caused strong winds to 'funnel' the high tide up the Solway Firth causing flooding in Rockcliffe.

The flood water covered an area of approximately 220,000 m² within the close vicinity of Rockcliffe, to a depth of 1.5m in places. It was recorded within a number of properties that the depth of the flood water was 0.9m. This area has been subject to flooding on several previous occasions which are detailed further in the report.

Following previous flood events property level protection (PLP) has been installed at a number of properties to help prevent internal flooding. The PLP installed at a number of the properties included brick walled barriers, flood gates, raised road humps and flood doors. Unfortunately, some properties that have PLP installed were affected internally by the flooding as the PLP was insufficient to prevent internal flooding due to either overtopping or leakage.

It is difficult to determine the exact timing of the flood event as the flooding occurred overnight but the tidal gauge indicates that the high tide was just before midnight and is assumed that the flooding occurred at this time.

Investigation

This section provides details of the existing flood risk, an analysis of flow routes and details of likely causes of flooding. Also included are details of the weather event, river flow, tidal levels and any previous flooding history in the area.

Existing flood risk

This section provides information on areas of flood risk from the Environment Agency mapping that is available. The following information is publically available and can be viewed at the following website - https://flood-warning-information.service.gov.uk/long-term-flood-risk/map. As can be viewed from the extract within Figure 2 below, the properties along Rockcliffe Coast Road and School Lane that were affected by the flooding on 2 January 2018 were already identified as being in a high / medium flood risk area.

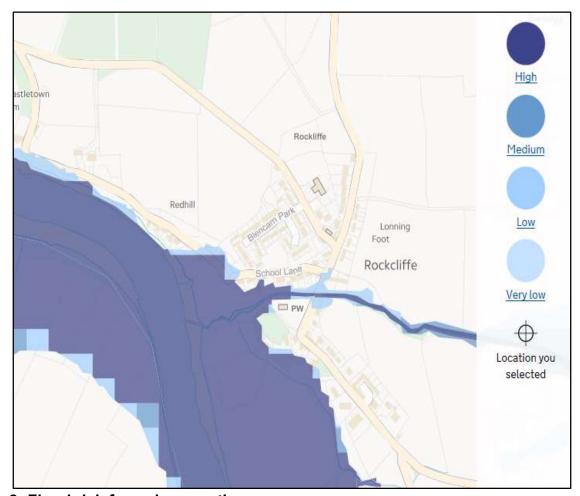


Figure 2: Flood risk from rivers or the sea

Key

High flood risk – greater than 3.3% (1 in 30 years) chance of flooding each year Medium flood risk – between 1% (1 in 100 years) and 3.3% chance of flooding each year Low flood risk – between 0.1% (1 in 1000 years) and 1% chance of flooding each year Very low flood risk – less than 0.1% chance of flooding each year

Flooding History

Rockcliffe Coast Road is a known flooding hotspot whereby the river Eden can burst its banks multiple times per year due to a combination of high tides and extreme rainfall events (either combined or separately). Records indicate that a stretch of the road adjacent to Rockcliffe is usually flooded 2 or 3 times per year during high tides.

The last major flooding incident at this location was in December 2015 during Storm Desmond whereby 2 properties were reported to have internally flooded. The main causation factor for this flooding was the exceedance of the River Eden associated with Storm Desmond rainfall. The Storm Desmond event was clearly a fluvial event and impacted on many communities along the River Eden.

Further information was gathered from various sources including the Environment Agency's Triton Tidal Forecast Summary Sheet and the Sinatra project.

Flood Event Date	Flood event type	No of properties affected	
6 th December 1865	Fluvial	Unknown	
November 1977	Tidal	Unknown	
22 nd September 1985	Surface water	Unknown	
February 1997	Tidal	Number of properties	
		reported as affected	
March 1998	Tidal	Unknown	
7/8 th January 2005	Fluvial	Unknown	
3 rd January 2014	Tidal	No internal flooding but close	
		to properties	
5 th December 2015	Fluvial	2no properties	

Table 1: Previous flood events data to the Coast Road / School Lane area

However, other areas in Rockcliffe are also prone to flooding from Rockcliffe Beck, ordinary watercourses or surface water runoff issues. On the 22 July 2018 flooding occurred on Lonning Foot and Blencarn Park as a result of such issues. No properties were internally flooded but up to 4 properties experienced external flooding with gardens and the adjacent highway being affected. This did not cause any internal flooding in the coast road / school road area.

Environment Agency Gauging Stations

The Environment Agency collect information from various gauging stations including tidal, river and rainfall gauges. This report has considered information from several such gauging stations as identified at the locations in the following plan –



Figure 3: Location of Environment Agency Gauging Stations

Tidal Impacts

As one of the main contributing factors to the flooding incident is considered to be the high tide at the time of the flooding, information from the nearest tidal gauge which is located approximately 16 miles away at Silloth Dock was considered.

The event of the 2nd January 2018 (Storm Eleanor) was compared against the tidal information from the event of 5th December 2015 (Storm Desmond) to demonstrate the difference in tidal levels during the 2 events. It can be seen that during Storm Eleanor the tides were approximately 2.6m higher than during Storm Desmond. See figure 4

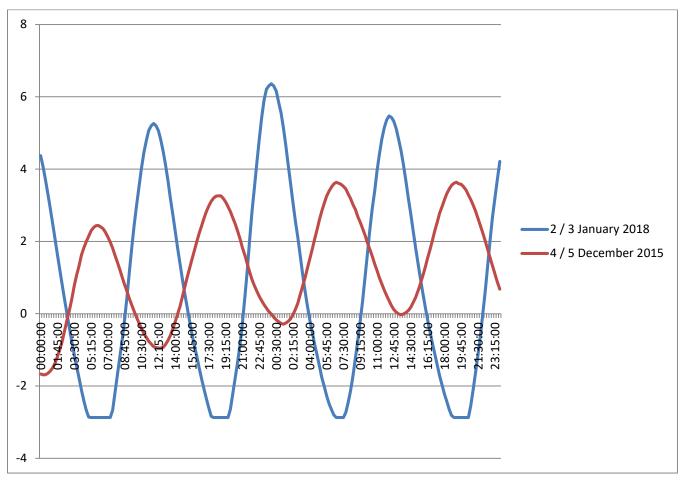


Figure 4: Comparisons of tidal Levels (m) at Silloth Docks

As can be seen there are two peaks in the tidal levels on the 2 January 2018; one at 11:45 (5.26m) and one at 23:45 (6.3m). The peak in the tidal level at 23:45 is considerably higher than that of the other peak at 11:45 by 1.04m. The 23:45 peak coincides with the anecdotal information provided by local residents as to the timing that the flooding began. It is understood that the flooding lasted approximately 6 hours.

As can be seen from the tidal information shown within Figure 5, the tidal fluctuations experienced within January 2018 were considerably more exaggerated and extreme than during the flooding of December 2015. It is considered that the high tide was a contributing factor to the flooding.

Weather Event

A storm event named by the Met Office as 'Storm Eleanor' occurred on the evening of the 2nd and into the morning of 3rd of January 2018. A 'Yellow Warning of Wind' valid from 18:00 on 2nd to 08:00 on 3rd was issued by the Met Office on 1st January 2018 at 12:12. This warned that combined with a period of high tides it was likely that some western coastal communities would be affected by large waves and spray. This warning covered the whole of the Cumbria Coast. The warning was updated at 10.26 on 2nd of January to extend the warning area to include the whole of England and Wales and parts of Northern Ireland and Scotland.

The weather warning of wind was escalated for parts of Northern Ireland, England (including the Cumbrian Coast) and Scotland to an amber warning at 17:25 on 2nd January. Part of this warning stated that along west-facing coasts, injuries and danger to life is likely from large waves and beach material being thrown onto roads, seafronts and properties. The warning was valid from 19:30 on 2nd January to 04:00 on 3rd January. The Met Office predicted gusts of wind at 70mph were quite likely.

The Met Office have provided details of the pressure systems in the location of Rockcliffe and from the diagrams below it can be seen how the low pressure moved north-easterly which would have had the effect of funnelling the winds up the Solway Firth and the River Eden at a similar time to the high tide.

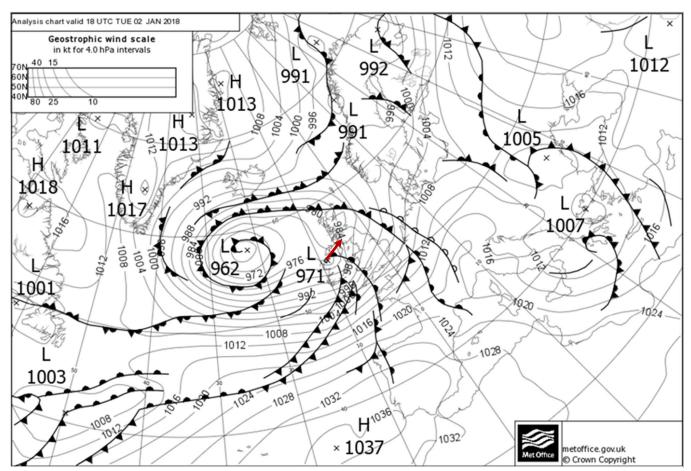


Figure 5: Low pressure system at 18:00 on 2nd January 2018 (red arrow indicates direct of travel)

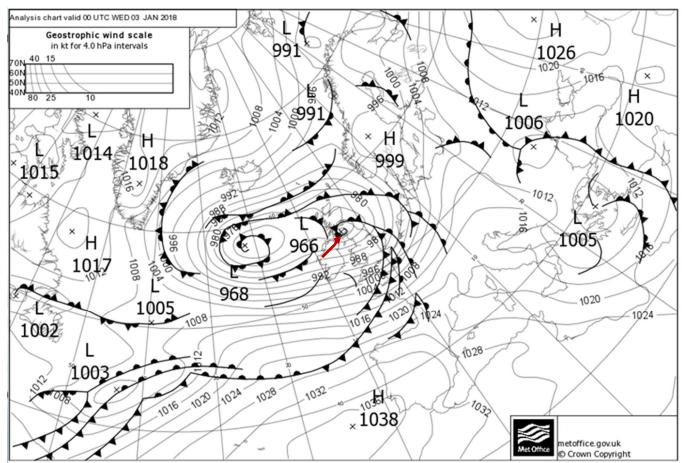


Figure 6: Low pressure system at 18:00 on 2nd January 2018 (red arrow indicates direct of travel)

Sea levels vary depending on the weather conditions being experienced as air pressure has a direct influence on the river / sea level. High air pressure exerts a force on the surroundings and results in water movement. So high air pressure over a sea area corresponds to low sea level and conversely low air pressure (a depression) results in higher sea levels. This is called the inverse barometer effect (storm surge). Therefore, with the storm event which occurred, the associated low pressure will have increased the water height within the Solway Firth and River Eden and contributed towards the flooding which occurred.

In addition to the wind factor information on rainfall was also gathered. The closest Environment Agency rainfall gauge is located in Willowholme in Carlisle which is located approximately 4 miles from Rockcliffe.

As can be seen within Table 2, 14.2mm of rainfall fell onto the Willowholme area within 24 hours. The table below also makes a comparison to other major rainfall events which have caused flooding in Rockcliffe, such as 7 January 2005 and the 5 December 2015, and compares the information at the Willowholme rain gauge.

Rainfall event	Total rainfall
07/01/2005	30.8mm
5/12/2015	38.8mm
02/01/2018	14.2mm

Table1: Comparison of 24hr rainfall totals recorded at Willowholme gauging station

Generally it is considered that a rainfall amount of 14.2mm is reasonably low and unlikely to cause surface water flood risk within the Carlisle or Rockcliffe area. It has also been recognised that even during major flooding events in Carlisle that the rainfall in the locality of Carlisle is very rarely the contributing factor to the flooding but it is the rainfall that falls high up in the Eden catchment that is the major contributing factor. The impact of rainfall high up in the catchment and its impact on the River Eden is probably best demonstrated by the river levels at the Sheepmount in Carlisle. These are discussed in the following section.

From the information gathered on the weather event of Storm Eleanor it is considered that the volume of rainfall did not have an impact on the flooding. However, it is considered that the low pressure system and the wind did impact on the already high tide and was a contributing factor to the flooding.

Upstream River Gauge Data on the Rivers Eden and Caldew

In order to ascertain as to whether or not the flooding was due to a fluvial event within the River Eden, the Environment Agency supplied river gauging data at the Sheepmount, Carlisle. Figure 6 below is a graphical representation of the river levels (m) on the 2 and 3 January 2018 compared with January 2005 and December 2015 fluvial events.

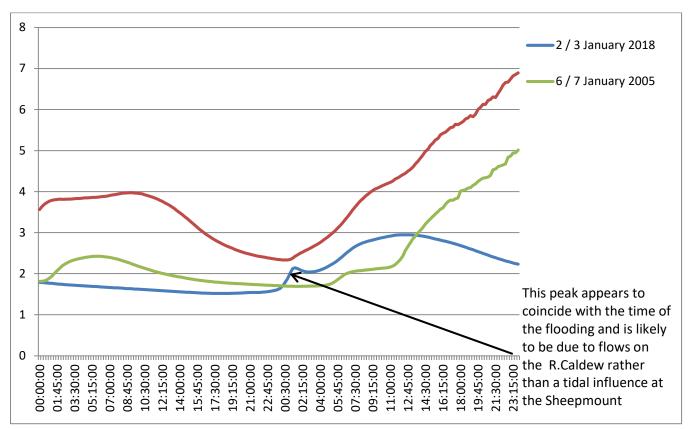


Figure 7: Comparison of the levels of the River Eden (m)

The river levels at the Sheepmount gauging station, approximately 4 miles upstream of Rockcliffe, illustrate that river levels fell from 1.788m at 00:00 on the 2 January 2018 to a point of 1.518m at 18:30. From 18:30 onwards the river levels rose rapidly to 1.61m at 23:45 and continued to rise into the 3 January 2018 with a peak of 2.947m at 12:00. In comparison with the historic flood events in January 2005 and December 2015 where river levels raised to in excess of 7.2m the event in January 2018 showed levels at least 4m less than this.

As can be seen from the comparison of the river levels from other flooding events in Rockcliffe and the vicinity, the levels experienced in January 2018 were considerably lower than those in 2005 and 2015. It is therefore considered that the flooding at Rockcliffe was not caused by a fluvial event.

However, it was noted when considering the river levels on the 2nd and 3rd of January 2018 that a small increase in levels occurred at approximately 00:30 on 3rd January which appeared to coincide with the timing of the tidal event. It was considered unusual as it had always been considered that a tidal event would not reach as far up the catchment as Carlisle. Further investigations were made which considered river levels on the River Caldew which feed into the River Eden upstream of the Sheepmount. It was discovered that there had been a peak in the river level on the River Caldew which coincided with the small increase on the River Eden at approximately 00:30 on 3rd of January. It was therefore concluded that the initial river level peak on the River Eden was not due to the tidal event. The following graph indicates this.

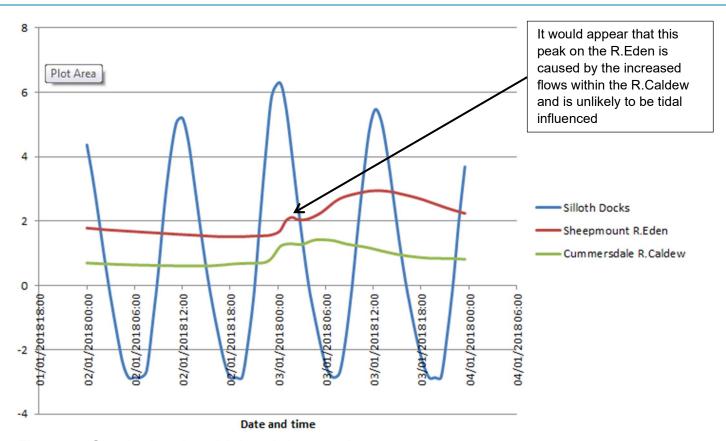


Figure 8: Graph showing tidal and river peaks

Map of Flow Routes

The following diagram indicates the route of the flood water from the River Eden towards Rockcliffe

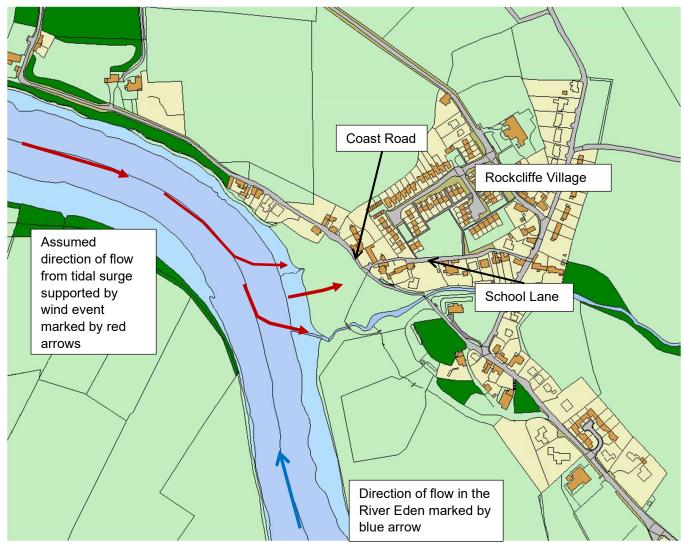


Figure 9: Likely flow routes during the Storm Eleanor flooding event on 2nd January (It is possible that the different routes were observed at different times)

As is shown within Figure 9 above, the source of water which flooded Rockcliffe Coast Road / School Lane is reported to have entered from the River Eden via the flood plain. It is understood that the tidal surge supported by the strong winds were funnelled up the Solway Firth Estuary and forced across the flood plain in the location of Rockcliffe. The flow in the River Eden from the Carlisle direction, although not close to record levels, also would contribute to the volume of flood water in the Rockcliffe area. No reports of any flooding from Rockcliffe Beck or surface water were reported on the 2 January 2018.

Post flooding photographs

The following photographs were taken approximately midday on 3rd January 2018 following the flooding event in Rockcliffe.



Photograph 1: During the second high tide on 3rd January 2018 looking towards the River Eden.

No significant waves during the second high tide on 3rd January but it shows the edge of the trash line in the bottom of the image. The coast road is also flooded during this high tide.



Photograph 2: Post the flood event looking down School Lane at the debris.

The volume of debris suggests that wave action has played a part in this, pushing the debris into the narrow road known as School Lane.

Likely Causes of Flooding

The flooding which occurred on the 2 January 2018 was as a result of 2 primary factors:

- The most significant of these being an astronomical tide / surge within the Solway Estuary.
- Low pressure weather system moving in a north-easterly way with very high associated wind speeds

In addition to the high tide, and low pressure / strong winds the flow in the River Eden, although not at particularly high flows may have also had a small contributing factor in the flooding.

Recommended Actions

The following table details recommended actions for various organisations and members of the public to consider using the Cumbria Floods Partnerships 5 Themes: Community Resilience, Upstream Management, Strengthening Defences, Maintenance, and Internal Drainage Boards (IDB's). Some of these recommendations may have already been carried out and or are ongoing.

Cumbria Flood Partnership Themes:	Action by:	Recommended Action:	Timescale:
Community Resilience	Community / affected residents / Parish Council	Prepare community flood action plan for use during flood events	As and when community consider it appropriate
Strengthening Defences	LLFA / Resident / Environment Agency	Look for funding avenues to improve property resilience.	Ongoing. Potential bid in 2021-27 Flood and Coastal Erosion risk Management Grant in Aid
Maintenance	Highways LLFA	Clean up of debris from road surface / gullies Undertake a levels	Completed January 2018 Completed January 2018
	Resident	survey of the flooded areas Check existing Property Level Protection is undamaged and installed correctly	Ongoing

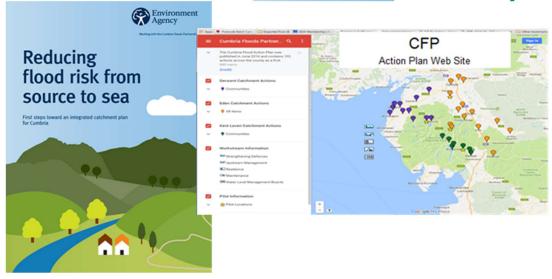
Residents and property owners who are aware that they are at risk of flooding should take action to ensure that they and their properties are protected. Community resilience is important in providing information and support to each other if flooding is anticipated. Actions taken can include laying sandbags 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. Anyone affected by flooding should try to document as much information about the incident as possible.

Next Steps – Community & Catchment Action Plan

The Cumbria Floods Partnership has brought together a wide range of community representatives and stakeholders from a variety of sectors to plan and take action to reduce flood risk. The Cumbria Floods Partnership, led by the Environment Agency, is producing a 25 year flood action plan for the Cumbrian catchments worst affected by the December 2015 flooding, including Carlisle. The plan will consider options to reduce flood risk across the whole length of a river catchment including upstream land management, strengthening flood defences, reviewing maintenance of banks and channels, considering water level management boards and increasing property resilience. The Cumbria Floods Partnership structure below details how these 5 themes are being delivered in the Flood Action plans which will be completed in July.

The diagrams below help demonstrate how the two partnerships have now come together:

Cumbria Flood Partnership





NEW Cumbria Strategic Flood Partnership

Cumbria Flood Partnership Cumbria LLFA Strategic Partnership

Cumbria Strategic Flood Partnership

Defra 25 Year Environment Plan Cumbria Flood Action Plan Local Flood Risk Management Strategy

2016 - Cumbria Pioneer

DEFRA 25 Year Environment Plan and vision

New and innovative ways of working Making bestuse of resources

Working at Catchment scale through engagement and commitment

Place based decision making within DEFRA vision

Lead – Jez Westgarth, Environment Agency

January 2016 - Cumbria Flood Partnership

Created following December 2015 floods

Local knowledge and expertise Integrated catchment management Community focus

25 year Cumbria Flood Action Plan

Lead–Rory Stewart MP, Environment Agency and 3 Catchment Directors

2013 – LLFA Cumbria Strategic Partnership

Flood and Water Management Act (2010)

Professional partnership providing strategic leadership for flood risk management

Reporting to RFCC

Coordination and cooperation between Risk Management Authorities (RMA's)

Lead - CCC as LLFA

Communities

Cumbria Strategic Flood Partnership Board

Management Groups x 3 Chaired by the Rivers

Making Space For Water Groups x 6

Working Groups; Infrastructure, Communications and Engagement



Communities working together across Cumbria

Cumbria County Council



Appendices

Appendix 1: Glossary

Acronyms

EA Environment Agency
CCC Cumbria County Council

UU United Utilities

LLFA Lead Local Flood Authority
LFRM Local Flood Risk Management
MSfWG Making Space for Water Group

FAG Flood Action Group

FWMA Flood and Water Management Act 2010

LDA Land Drainage Act 1991 WRA Water Resources Act 1991

Appendix 2: Summary of Relevant Legislation and Flood Risk Management Authorities

The Flood Risk Regulations 1999 and the Flood and Water Management Act 2010 (the Act) have established Cumbria County Council (CCC) as the Lead Local Flood Authority (LLFA) for Cumbria. This has placed various responsibilities on CCC including Section 19 of the Act which states:

Section 19

- (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.

A 'Risk Management Authority' (RMA) means:

- (a) the Environment Agency,
- (b) a lead local flood authority,
- (c) a district council for an area for which there is no unitary authority,
- (d) an internal drainage board,
- (e) a water company, and
- (f) a highway authority.

The table below summarises the relevant Risk Management Authority and details the various local source of flooding that they will take a lead on.

Flood	Environment	Lead Local	District	Water	Highway
Source	Agency	Flood	Council	Company	Authority
		Authority			
RIVERS					
Main river					
Ordinary					
watercourse					
SURFACE					
RUNOFF					
Surface					
water					
Surface					
water on the					
highway					
OTHER					
Sewer					
flooding					
The sea					
Groundwater					
Reservoirs					

The following information provides a summary of each Risk Management Authority's roles and responsibilities in relation to flood reporting and investigation.

<u>Government</u> – Defra develop national policies to form the basis of the Environment Agency's and Cumbria County Council's work relating to flood risk.

<u>Environment Agency</u> has a strategic overview of all sources of flooding and coastal erosion as defined in the Act. As part of its role concerning flood investigations this requires providing evidence and advice to support other risk management authorities. The EA also collates and reviews assessments, maps and plans for local flood risk management (normally undertaken by LLFA).

<u>Lead Local Flood Authorities (LLFAs)</u> – Cumbria County Council is the LLFA for Cumbria. Part of their role requires them to investigate significant local flooding incidents and publish the results of such investigations. LLFAs have a duty to determine which risk management authority has relevant powers to investigate flood incidents to help understand how they happened, and whether those authorities have or intend to exercise their powers. LLFAs work in partnership with communities and flood risk management authorities to maximise knowledge of flood risk to all involved. This function is carried out at CCC by the Local Flood Risk Management Team.

<u>District and Borough Councils</u> – These organisations perform a significant amount of work relating to flood risk management including providing advice to communities and gathering information on flooding.

<u>Water and Sewerage Companies</u> manage the risk of flooding to water supply and sewerage facilities and the risk to others from the failure of their infrastructure. They make sure their systems have the appropriate level of resilience to flooding and where frequent and severe flooding occurs they are required to address this through their capital investment plans. It should also be noted that following the Transfer of Private Sewers Regulations 2011 water and sewerage companies are responsible for a larger number of sewers than prior to the regulation.

<u>Highway Authorities</u> have the lead responsibility for providing and managing highway drainage and certain roadside ditches that they have created under the Highways Act 1980. The owners of land adjoining a highway also have a common-law duty to maintain ditches to prevent them causing a nuisance to road users.

Flood risk in Cumbria is managed through the Making Space for Water process which involves the cooperation and regular meeting of the Environment Agency, United Utilities, District/Borough Councils and CCC's Highway and LFRM Teams to develop processes and schemes to minimise flood risk. The MSfWGs meet approximately 4 times per year to cooperate and work together to improve the flood risk in the vulnerable areas identified in this report by completing the recommended actions. CCC as LLFA has a responsibility to oversee the delivery of these actions.

Where minor works or quick win schemes can be identified, these will be prioritised and subject to available funding and resources will be carried out as soon as possible. Any major works requiring capital investment will be considered through the Environment Agency's Medium Term Plan or a partners own capital investment process.

Flood Action Groups are usually formed by local residents who wish to work together to resolve flooding in their area. The FAGs are often supported by either CCC or the EA and provide a useful mechanism for residents to forward information to the MSfWG.

Appendix 3: Useful contacts and links

Cumbria County Council (Local Flood Risk Management):

Ifrm@cumbria.gov.uk, www.cumbria.gov.uk, tel: 01228 221330

Cumbria County Council (Highways):

highways@cumbria.gov.uk, www.cumbria.gov.uk, tel: 0845 609 6609 Out of hours emergencies should be reported via the Police on 101

United Utilities: www.unitedutilities.com, tel: 0845 746 2200

Carlisle City Council: tel: 01228 817000

Flood and Water Management Act 2010:

http://www.legislation.gov.uk/ukpga/2010/29/contents

Water Resources Act 1991:

http://www.legislation.gov.uk/all?title=water%20resources%20act

Land Drainage Act:

http://www.legislation.gov.uk/all?title=land%20drainage%20act

Highways Act 1980:

http://www.legislation.gov.uk/all?title=highways%20act

EA – 'Living on the Edge' a guide to the rights and responsibilities of riverside occupation: http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx

EA – 'Prepare your property for flooding' how to reduce flood damage including flood protection products and services:

http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx

Translation services

If you require this document in another format (e.g. CD, audio cassette, Braille or large type) or in another language, please telephone 01228 606060.

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