Dearham

Flood Investigation Report

Flood Event 3 - 5 December 2015

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	A.Harrison	Doug Coyle		12/8/2016
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Executive Summary

Dearham experienced severe flooding on the evening of the 3rd December 2015. As a precursor of Storm Desmond, a short period of very intense rainfall, falling on an already saturated catchment, fell across north-western Cumbria. This short duration intense rainstorm led to a rapid and extreme response in small watercourses and surface water systems and flows.

Cumbria County Council as Lead Local Flood Authority 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.

We have also provided a summary of flooding and 7 Recommended actions

Any additional information that residents and others can provide to the Environment Agency and Cumbria County Council to help develop our understanding of the flooding is welcomed. A lot of information has already been provided, much of which has been used to inform this report. The scale of this report means that not every piece of information can be incorporated into the document. Any additional information should be provided to;

http://www.cumbria.gov.uk/planning-environment/flooding/floodriskassessment.asp

Event Background

Dearham experienced severe flooding on the evening of the 3rd December 2015. As a precursor of Storm Desmond, a short period of very intense rainfall, falling on an already saturated catchment, fell across north-western Cumbria the night before the prolonged rainfall across the whole of Cumbria. This short duration intense rainstorm led to a rapid and extreme response in small watercourses and surface water systems and flows.

In response to the flood event, this Flood Investigation Report has been completed by Cumbria County Council as the Lead Local Flood Authority, under the duties as set out in Section 19 of the Flood and Water Management Act 2010. This report provides details on the flooding that occurred in Dearham on the 3rd of December 2015, and has used a range of data collected from affected residents, site visits, and data collected by observers, along with rainfall telemetry during the flood event.

Within Dearham, small watercourses became inundated with roads becoming major flow routes for floodwater leading to flooding of approx. 20 properties.

Flooding Incident

Location plan

Dearham

Figure 1: Location Plan

Dearham is situated approx. 4 miles to the north west of Cockermouth and 2 miles to the east of Maryport and the Sea. There are no major waterbodies within the heart of the village. Row beck is an ordinary watercourse that runs in a northerly direction along the eastern perimeter and joins the river Ellen before discharging at Maryport.

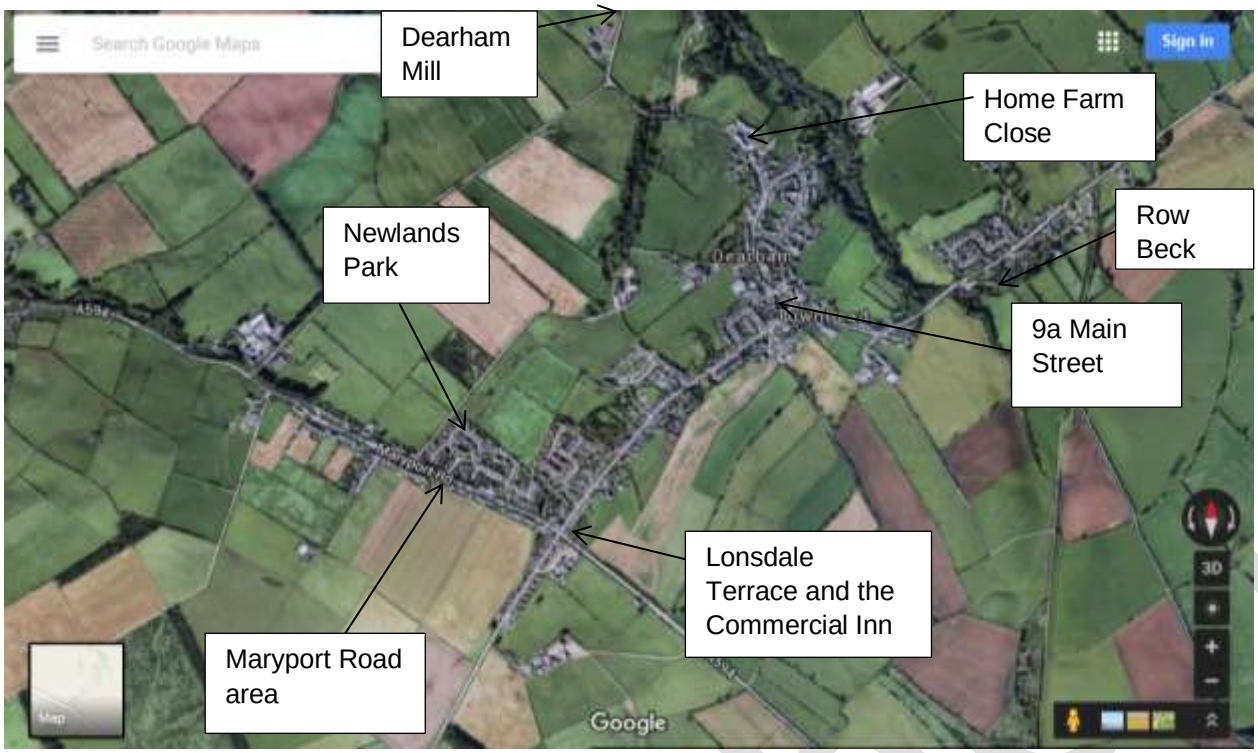


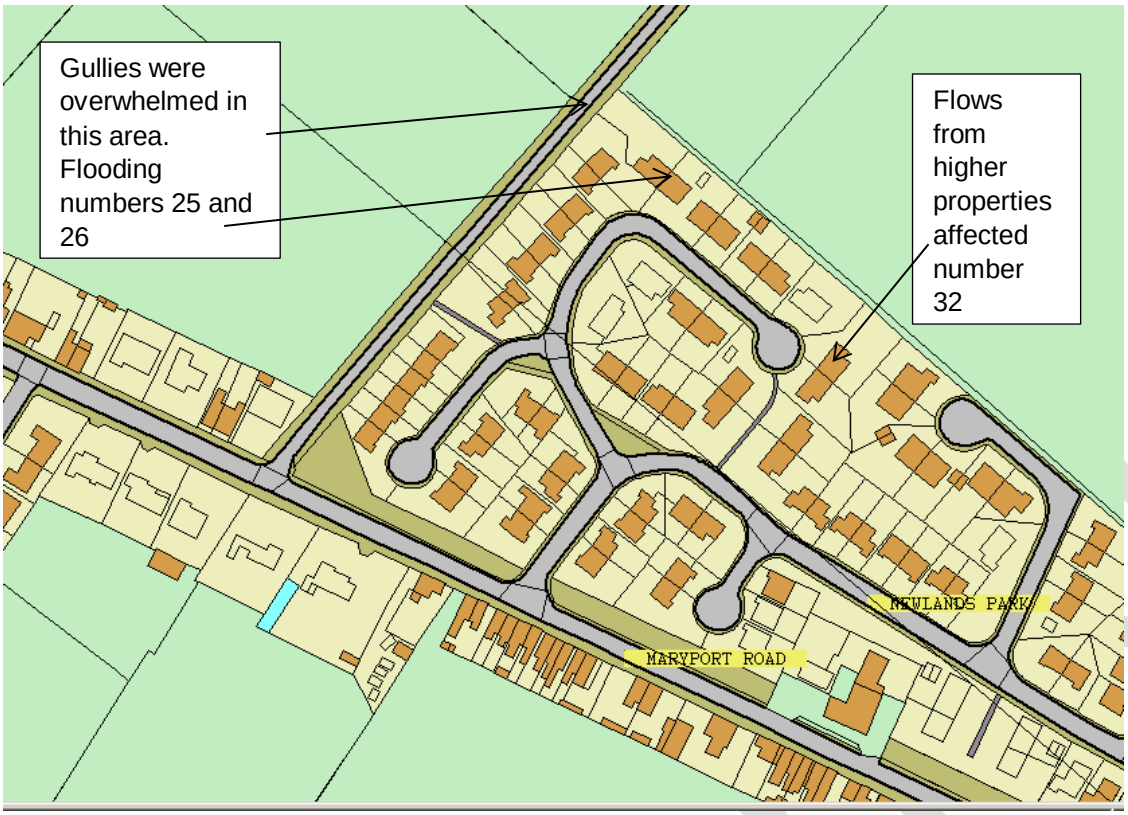
Figure 2: Location of flooded properties

Maryport Road Area

The main cause of flooding to the properties in this area was overland flows from the fields behind Maryport Road. The water builds up against the boundary walls of the properties and during extreme events can overtop the walls. There is a drain from this low area and it is unclear if this became blocked during the storm.

Figure 3: Low walls behind properties on Maryport Road Drainage in field at the rear of the properties

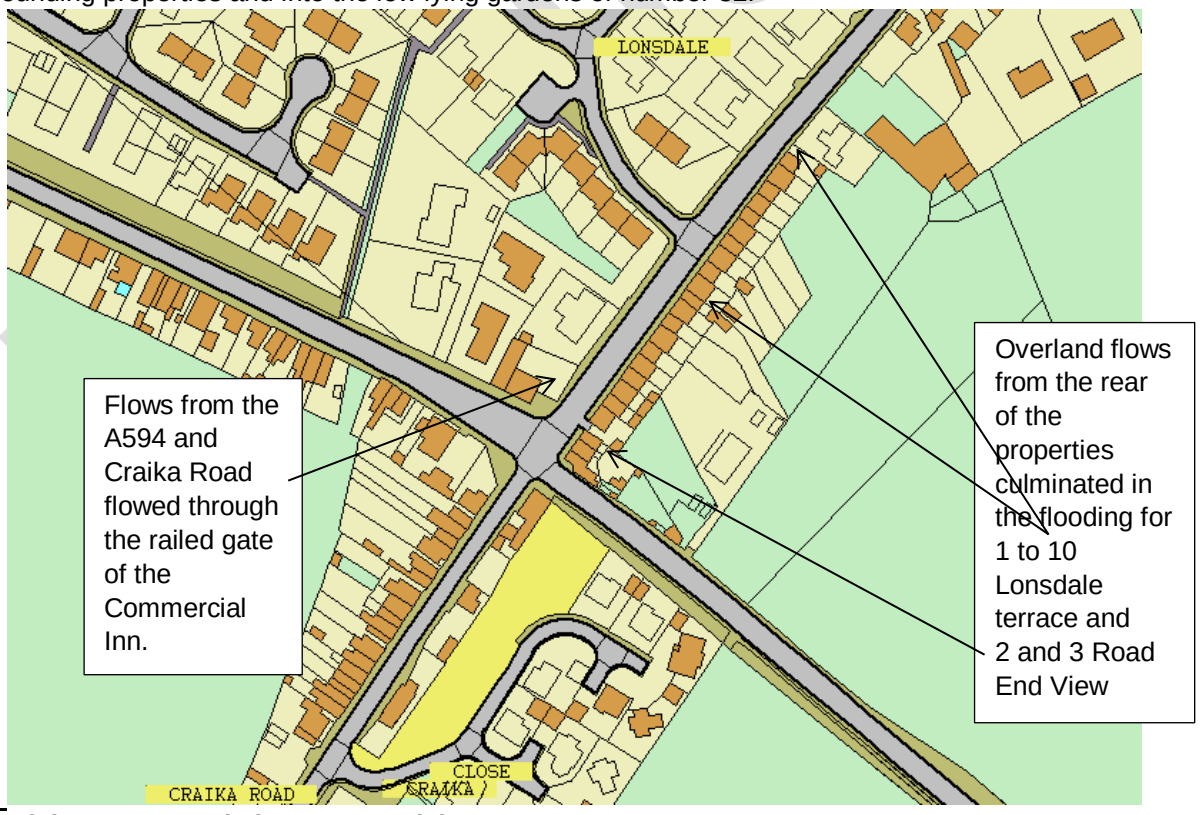
There were also issues with flows on the A594 due to the drains not being able to cope with the sheer volume of water.



Newlands Park Area

The flooding in this area was caused by a torrent of water flowing from the Fields above the A594 and running down The Went. The new gullies in the dip quickly became blocked/overwhelmed and the water ran through the Hedgerow of number 24 and into the properties of 25 and 26.

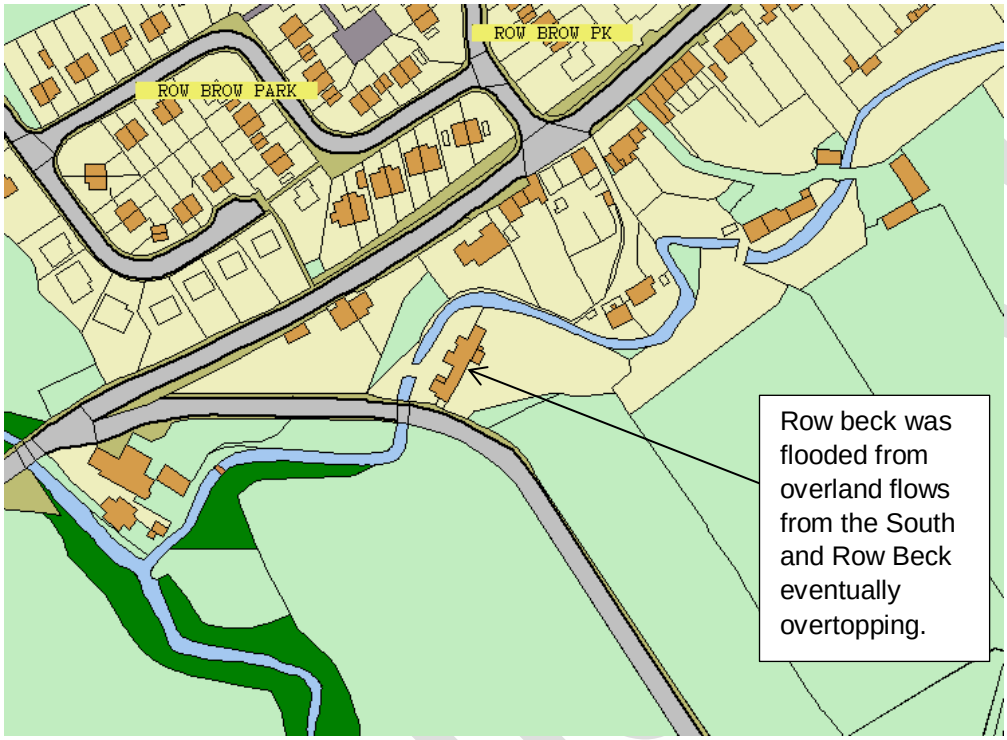
Number 32 was internally flooded from a different source as the flows came from the higher gardens of the surrounding properties and into the low lying gardens of number 32.



Lonsdale Terrace and The Commercial Inn

The flooding at numbers 2 and 3 Road end view were caused by surface water from the higher ground behind the properties cascading into the rear yards. The drainage within the yards became overwhelmed and there was no obvious escape route once the drainage began to surcharge.
This scenario was repeated further along at Lonsdale Terrace where the water from the fields from higher ground built up in the low yards to the rear of the properties, this culminated in numbers 1 to 10 becoming internally flooded.

The commercial Inn opposite was inundated through the railed gate at the front due to excessive flows from Craika Road and the A594.



Row Beck

The property at Row Beck was initially flooded from the higher ground to the south of the property coming through the floors of the building. This was followed by Row Beck bursting its banks and exacerbating the problem from the front.

Home Farm Close

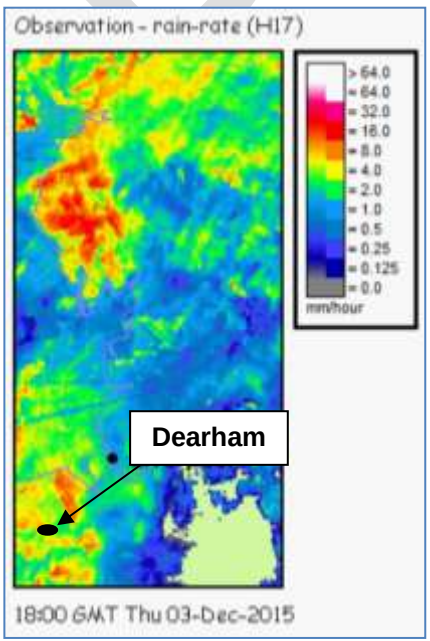
Number 1 Home Farm Close became internally flooded when surface water from fields to the west of the public highway poured through the Hedgerow. The highway drainage was unable to cope and the surface water built up before entering through the patio doors to the rear of the property

Dearham Mill

Dearham Mill suffered from the river Ellen bursting its banks and this water lapped against the property but the worst of the flooding came from the higher ground to the south of the property.

Main Street

Numbers 1a and 9a Main Street are the lowest lying properties in this vicinity and flows from both the highway and particularly the higher ground behind built up in the low forecourts and yards before flooding into the properties.



Rainfall Event

December 2015 was the wettest calendar month on record for the UK, with much of northern England receiving double the average December rainfall. This also followed a particularly wet November and as such, much of the ground within the Cumbria catchments was already saturated.

Figure 2 Rainfall Intensity Radar over Cumbria 3 December 2015 18:00

On the afternoon and early evening of Thursday the 3 December between 17:00 and 19:30 hrs an extreme rainfall event affected West Cumbria. The epicentre of the flooding was the west facing upslope

areas near the coast, especially in the areas between Flimby and Maryport. In one 15 minute interval 7mm of rain was recorded.

The rain gauge at Dearham showed that during the evening of 3 December 2015 over 30mm of rain was recorded in a 3 hour period.

Investigation

Cumbria County Council as LLFA for Cumbria have investigated the flooding for Dearham. This has been undertaken through site visits, talking to affected residents, door knocking, Flooded property lists provided by Allerdale Borough Council and information passed on through the parish council.
Information has also been passed on through the drop in event that was held by the various risk management authorities in Maryport.

Map of Flow Routes

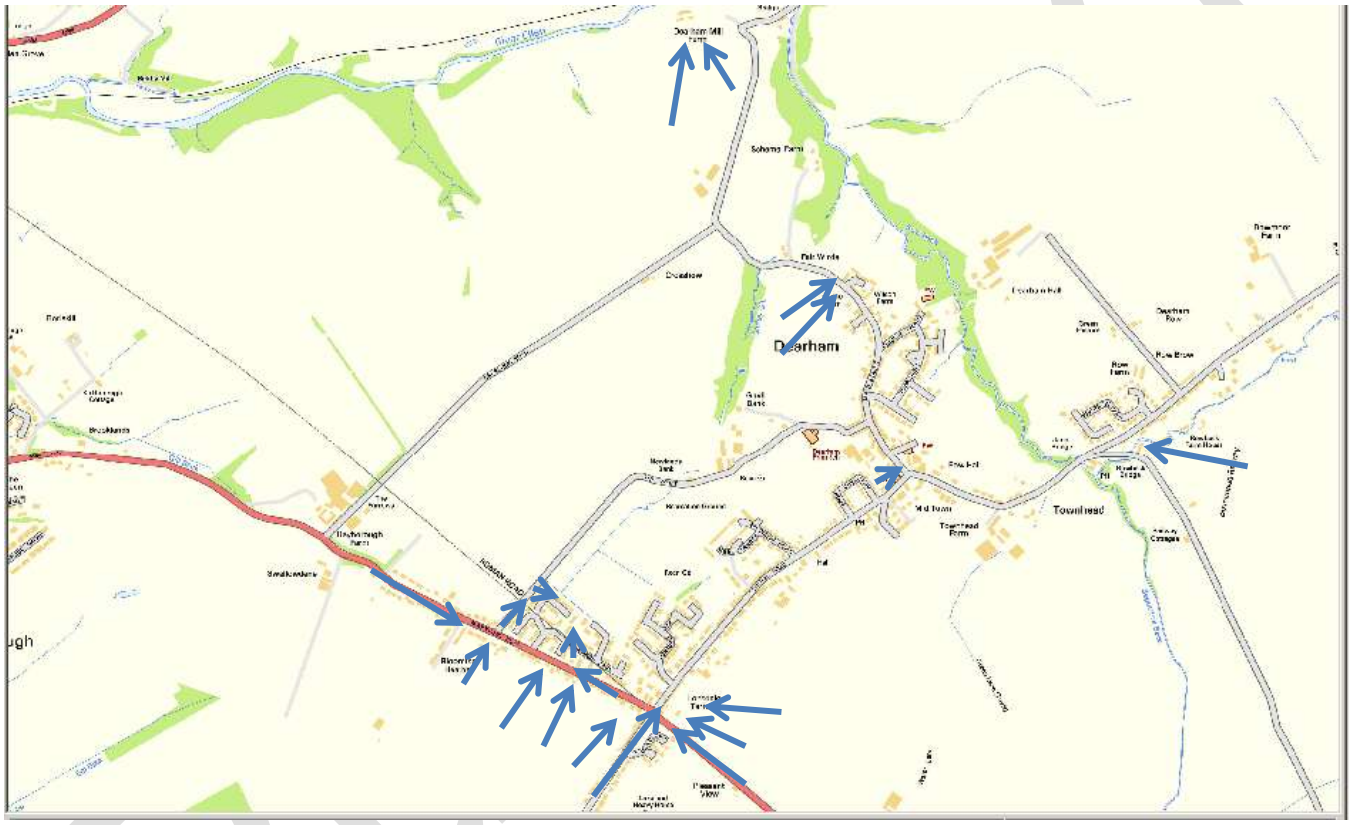


Figure 2:

Likely Causes of Flooding

The flooding was caused by the sheer volume of water falling onto an already saturated catchment. The highway drains are only designed to cope with a reasonable amount of water that falls within the highway and so would not be able to cope with the excess water from the surrounding land.

Flooding History

Previous flooding in Dearham has followed a similar pattern to this occasion where it seems to be sporadic occurances rather than a set pattern. Historical problems to properties on Central Road have seen United Utilities earmark a major project to be carried out for the village and have already carried out consultations on this. The properties on Maryport Road are vulnerable due to the surface run off from the higher ground from the fields but it is unknown if, or on how many occasions these properties have suffered from internal flooding previously.
Work carried out in 2009 on private land seemed to have eased the historical problem for the Commercial Inn but the flooding in 2015 was from a completely different source.

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 Theme	Action by	Recommended Action	Timescale
Maintenance	CCC	Improve/ re-establish highway drainage in the Home Farm Close area	complete
	Connect Roads	Ensure gully maintenance is carried out on Maryport Road. Look into coordinating a letter drop so vehicles can be moved to coincide with gully cleaning.	2016/2017 financial year
	United Utilities	Engage with community regarding historical issues and future works	2017
	Landowners/Riparian Owners. LLFA	Check drainage infrastructure on land, look into improving farming practices to reduce surface run off. Drainage from land at the rear of Maryport Road.	A MSFW bid has been tended to improve the drainage to the rear of Maryport road.
Upstream Management			
Community Resilience	Residents	Investigate property level protection for affected homes (flood doors, concrete floors etc). Grants available via	Grant applications end 31st March 2017

		District/Borough Council	
	Persimmon homes	Provide dwarf wall along the boundary of number 24 and The Went to provide flow route directly into the watercourse.	Completed.
	Residents (Lonsdale Terrace area)	Provide resilience to boundary walls that are vulnerable, these could be heightened to provide more storage in the fields	(Resilience grant could be used for these measures).
	Residents (Road end view area)	Provide flow routes through gardens so a build up of water does not occur.	(Resilience grant could be used for these measures).

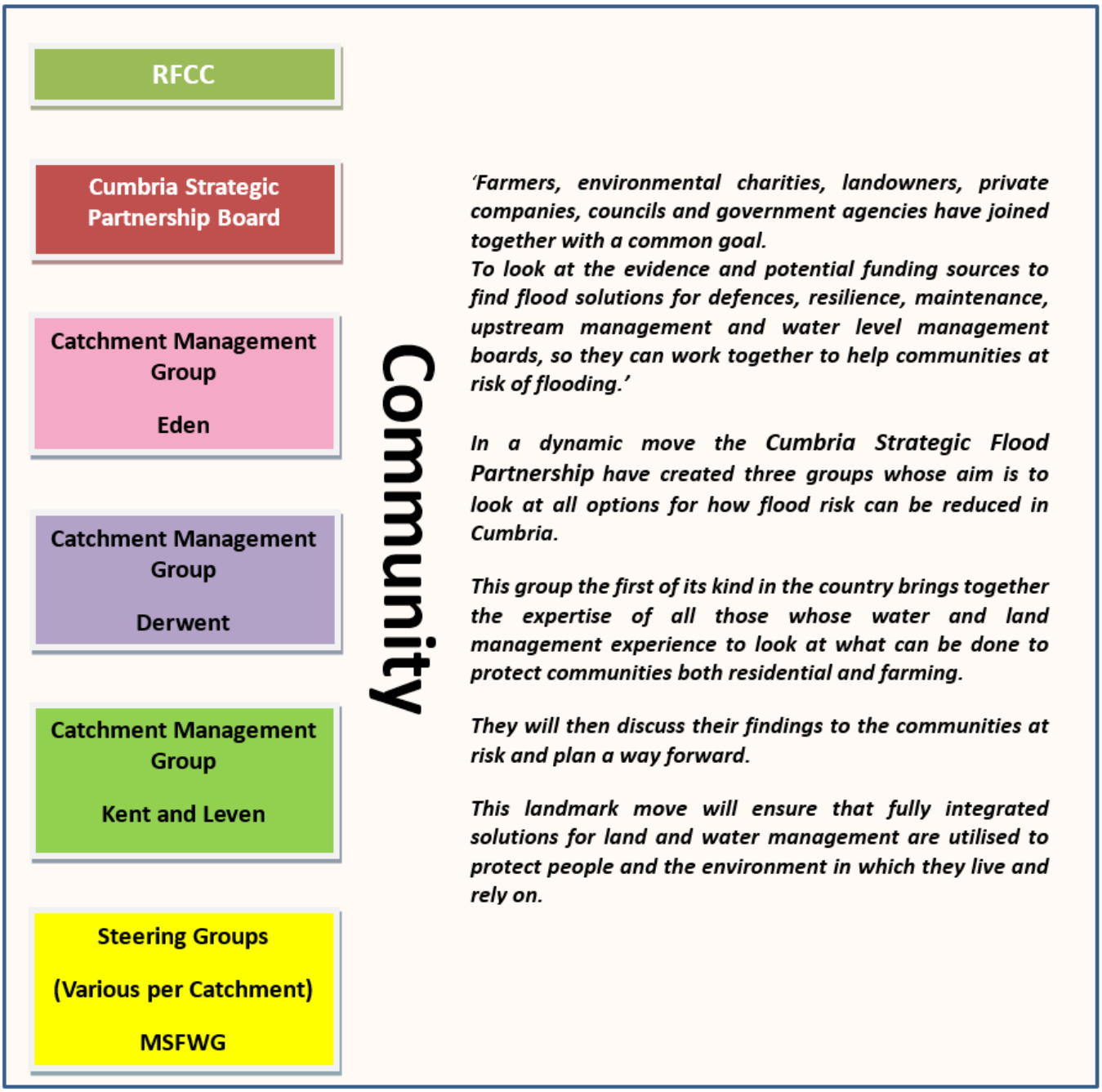
* The Cumbria Local Resilience Forum includes emergency services, Local Authorities, Cumbria County Council, Environment Agency, Maritime Coastguard Agency and health agencies along with voluntary and private agencies. Under the Civil Contingencies Act (2004) every part of the United Kingdom is required to establish a resilience forum.

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 helps demonstrate how the two partnerships have now come together:


RFCC
Cumbria Strategic Partnership Board
Catchment Management Group
Eden
Catchment Management Group
Derwent
Catchment Management Group
Kent and Leven
Steering Groups
(Various per Catchment)
MSFWG
Community
'Farmers, environmental charities, landowners, private companies, councils and government agencies have joined together with a common goal.
To look at the evidence and potential funding sources to find flood solutions for defences, resilience, maintenance, upstream management and water level management boards, so they can work together to help communities at risk of flooding.'
In a dynamic move the Cumbria Strategic Flood Partnership have created three groups whose aim is to look at all options for how flood risk can be reduced in Cumbria.
This group the first of its kind in the country brings together the expertise of all those whose water and land management experience to look at what can be done to protect communities both residential and farming.
They will then discuss their findings to the communities at risk and plan a way forward.
This landmark move will ensure that fully integrated solutions for land and water management are utilised to protect people and the environment in which they live and rely on.

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 Source	Environment Agency	Lead Local Flood Authority	District Council	Water Company	Highway 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.

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

Environment Agency 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).

Lead Local Flood Authorities (LLFAs) – 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.

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

Water and Sewerage Companies 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.

Highway Authorities 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):
lfrm@cumbria.gov.uk, www.cumbria.gov.uk, tel: 01228 221330

Cumbria County Council (Highways):
highways@cumbria.gov.uk, www.cumbria.gov.uk, tel: 0300 303 2992
Out of hours emergencies should be reported via the Police on 101

Insert Neighbourhood forum contact details

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

Insert relevant DC contact details

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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如果您希望通过母语了解此信息，
请致电 **01228 606060**

Jeigu norėtumėte gauti šią informaciją savo kalba, skambinkite telefonu 01228 606060

W celu uzyskania informacji w Państwa języku proszę zatelefonować pod numer 01228 606060

Se quiser aceder a esta informação na sua língua, telefone para o 01228 606060

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