Maryport

Inc. Ellenborough

S.19 Flood Investigation Report

Maryport Aerial View – Google Earth

Flood Event 3rd December 2015

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

Version	Prepared by	Reviewed by	Date
Working Draft for discussion	Rachel Gerrard	Chris Evans	May 2016
Draft incorporating feedback	Rachel Gerrard	Chris Evans	July 2016
Final Draft incorporating community feedback	Chris Evans	Doug Coyle	January 2017

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Executive Summary

Maryport 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.

In response to the flood event, this Flood Investigation Report has been completed by the Environment Agency as a key Risk Management Authority (RMA) working in partnership with 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 Maryport on the 3rd of December 2015, and has used a range of data collected from affected residents, site visits, surveys of the area, and data collected by observers, along with rainfall telemetry during the flood event.

Within Maryport, small watercourses became inundated with roads becoming major flow routes for floodwater leading to the flooding of approximately 50 properties. Maryport has two small watercourses that join the larger River Ellen before flowing out to sea, Eel Syke and Gill Beck. Both are designated main rivers and come under the powers of the Environment Agency. The Environment Agency maintains debris grids on Eel Sike and Gill Beck.

Please note that references to left and right bank are taken looking downstream with the flow of water.

Ten actions have been recommended in this report to manage future flood risk. These will require the involvement of a number of organisations and local communities and include a review of the risk posed by flooding in order to identify any areas that can be improved. This review will also include potential improvements to processes such as flood warnings and recovery. This review is being undertaken separately to this report.

Any additional information that can be provided 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. Any additional information should be provided to;

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

The Flood Investigation Report

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.

As a flood Risk Management Authority (RMA), the Environment Agency have partnered with Cumbria County Council (CCC) to produce the 53 flood investigation reports across Cumbria.

Scope of this report

This Flood Investigation Report **is**:

- an investigation on the what, when, why, and how the flooding took place resulting from the 5th-6th December 2015 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, including a timetable of Flood Forum events and associated documentation, please visit the County Council website at:

http://www.cumbria.gov.uk/floods2015/floodforums.asp

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

Introduction

Geographical Setting

Maryport is a small town of approximately 12,000 people located on the West Coast of Cumbria, **Figure 1**. The modern town of Maryport was the creation of the Senhouse family in the 18th century, who developed the small fishing village into a coal port. Like Whitehaven, Maryport was a planned town with terraces of cottages built on a grid system, with employment based on coal mining and ship building.

Figure 1: Location of Maryport

Flooding History

Maryport has a long history of flooding from the sea but limited information exists for small watercourses although reports exist relating to flooding from Eel Sike and Gill Beck, **Figure 2**. Reports of surface water flooding also exist which reference properties in Selby Terrace / Lawson Street dating back to in 2005, **Figure 3**.

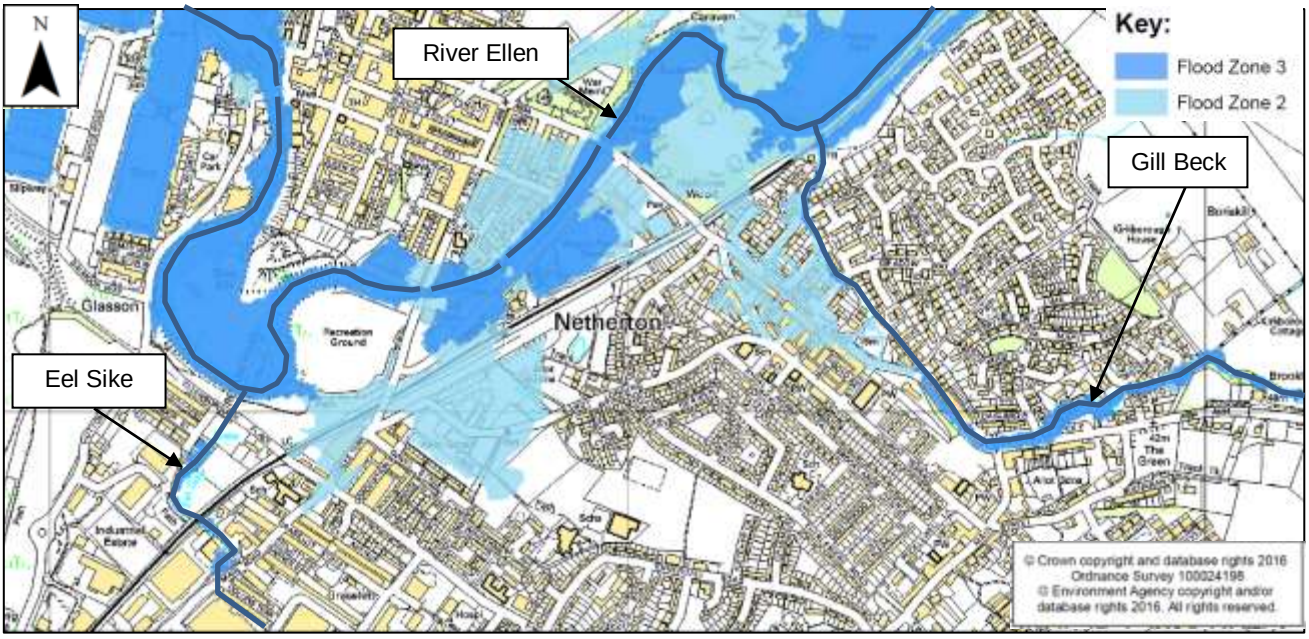


Figure 2: Environment Agency Flood Map for Maryport

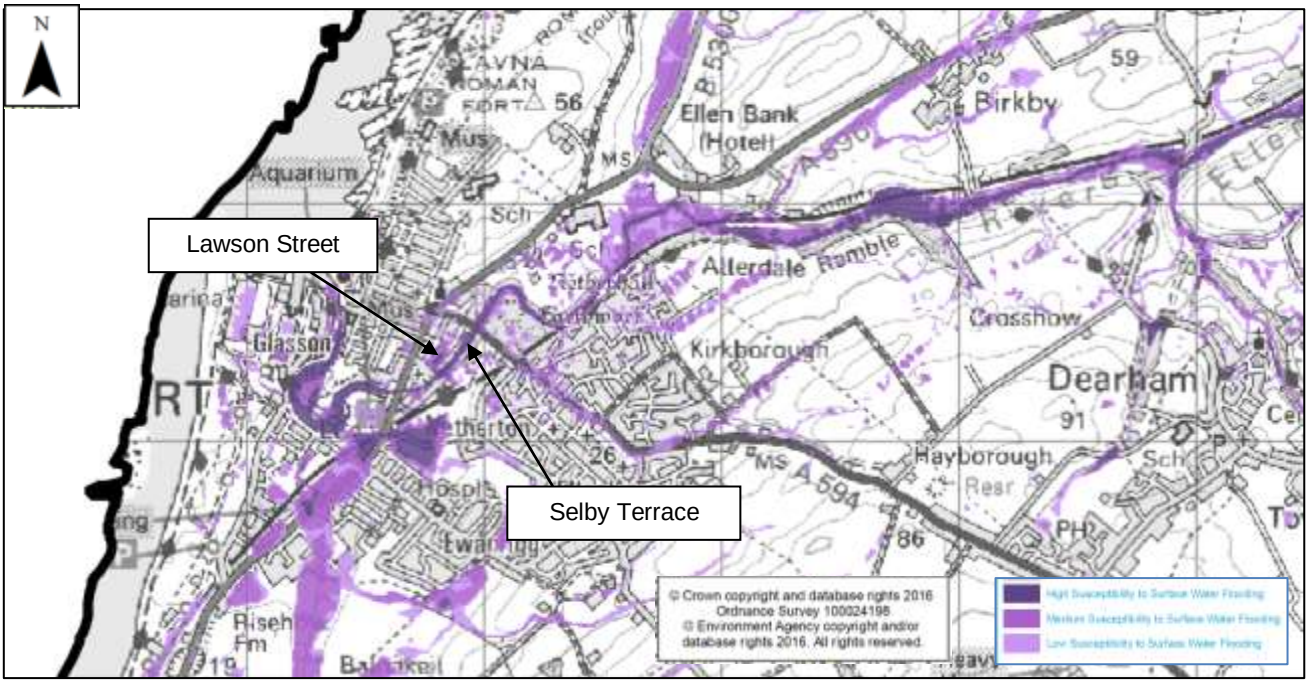


Figure 3: Extract from Allerdale Borough Council Surface Water Flood Map 2010

Flood Event 3rd December 2015

Background

On the 3rd December 2015, approximately 50 properties suffered internal flooding in Maryport, while others experienced flooding of gardens, footpaths and roadways. The area affected by the flooding is shown in **Figure 4**. A short heavy rain storm fell on the steep hillsides overwhelming watercourses, ditches and drains resulting in roads and pathways acting as floodwater pathways.

Figure 4 Extent of River (Fluvial) Flooding* in Maryport 3rd December 2015
The flood outline identifies the maximum extent of flooding. Not all properties within the extent area were flooded.

For the purposes of this report, the main areas impacted by flooding have been divided into 4 sub-areas for investigation, **Table 1**. These are based on flood flow routes. These sub-areas are shown in **Figure 5**.

Sub-area	Location	Source of flooding
1a	Elbra Farm Close	Gill Beck
1b	Hawthorn Ave	
2	Grasslot Street and Solway Trading Estate	Eel Sike
3	Lawson Street / Selby Terrace	Surface water / River Ellen

Table 1: Sub-areas impacted by flooding

Single properties also flooded outside of these areas due to issues with surface water drains. These properties are spread out through Maryport and will be investigated individually.

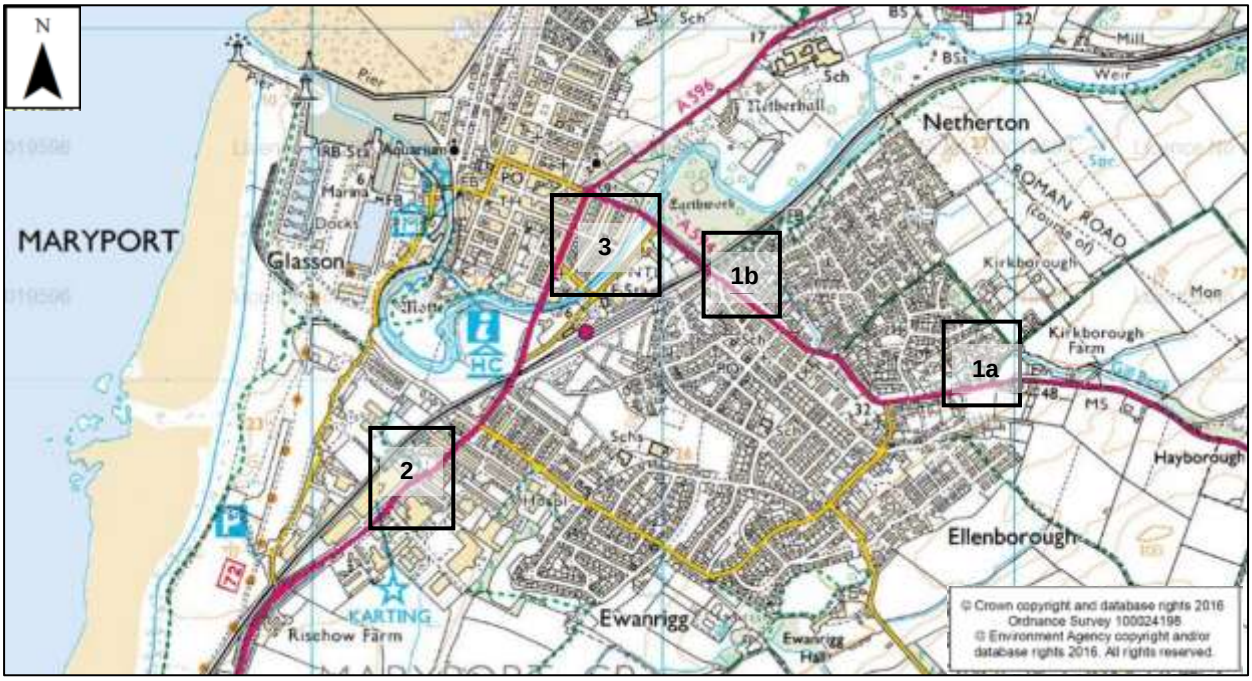
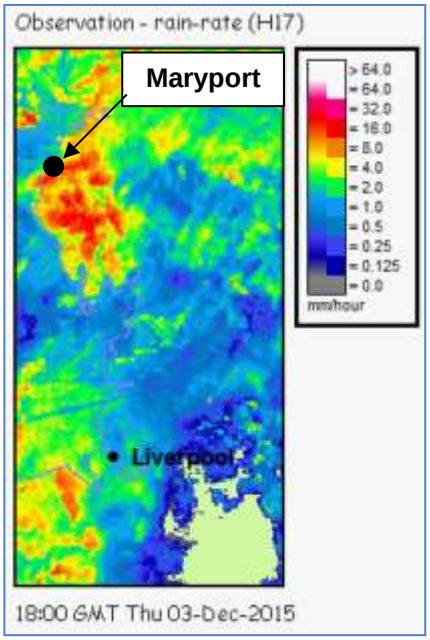


Figure 5: Identification of Areas Flooded

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 followed a particularly wet November and as such, much of the ground within the Cumbria catchments was already saturated.



On the afternoon and early evening of Thursday 3 December 2015, between 17:00 and 19:30, an extreme rainfall event affected West Cumbria, **Figure 6**. The epicentre of the flooding has been identified as west facing upslope areas near the coast, especially in the area around Maryport. In one 15 minute interval 7mm of rain was recorded.

The nearest rain gauge to Maryport is at Dearham where the headwaters of Eel Syke and Gill Beck both originate. During the evening of 3 December 2015 over 30mm of rain was recorded in a 3 hour period.

Figure 6: Rainfall Intensity Radar over Cumbria 3 December 2015 18:00

The watercourses through Maryport outfall into the River Ellen which is tidal to Ellen Bridge. Eel Sike is within the tidal limit and Gill Beck upstream of the tidal limit. On the Evening of Thursday 3 December 2015 high tide was at about 16:56.

Existing Flood Defences

Gill Beck and Eel Sike have a history of flooding issues. A number of Environment Agency operational sites exist in Maryport, **Figure 7**, which are maintained periodically with culverts being surveyed for damage and blockages on a regular basis. Work has been completed to clean and line culvert sections and install debris grids to the upstream ends. Eel Sike was surveyed in 1997, 2010 and 2012. Gill Beck was surveyed in 2010 and 2014.

The culvert under Elbra Farm Close on Gill Beck was relined and new debris grids added in 2012.

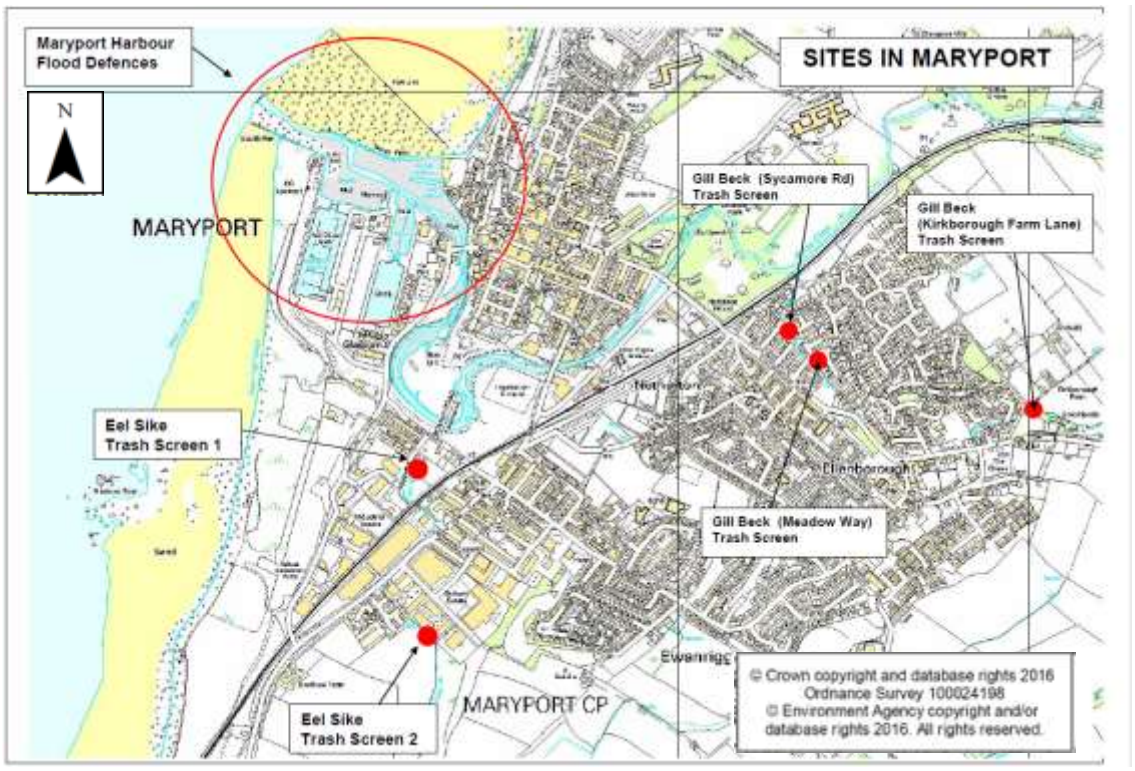


Figure 7: Environment Agency Operational Sites in Maryport

Investigation

This investigation was carried out by the Environment Agency through surveys of the area, and data collected from the community affected. This report has compiled this data to provide details of flooding from surface water, and watercourses, namely the River Ellen, Gill Beck and Eel Sike.

Map of Flow Routes

There were a number of flooding flow routes during the event. These are summarised in **Figure 8**. The details of these flow routes and the flooding within each of the identified areas is discussed in the 'Impacts and Likely Causes of Flooding' section.

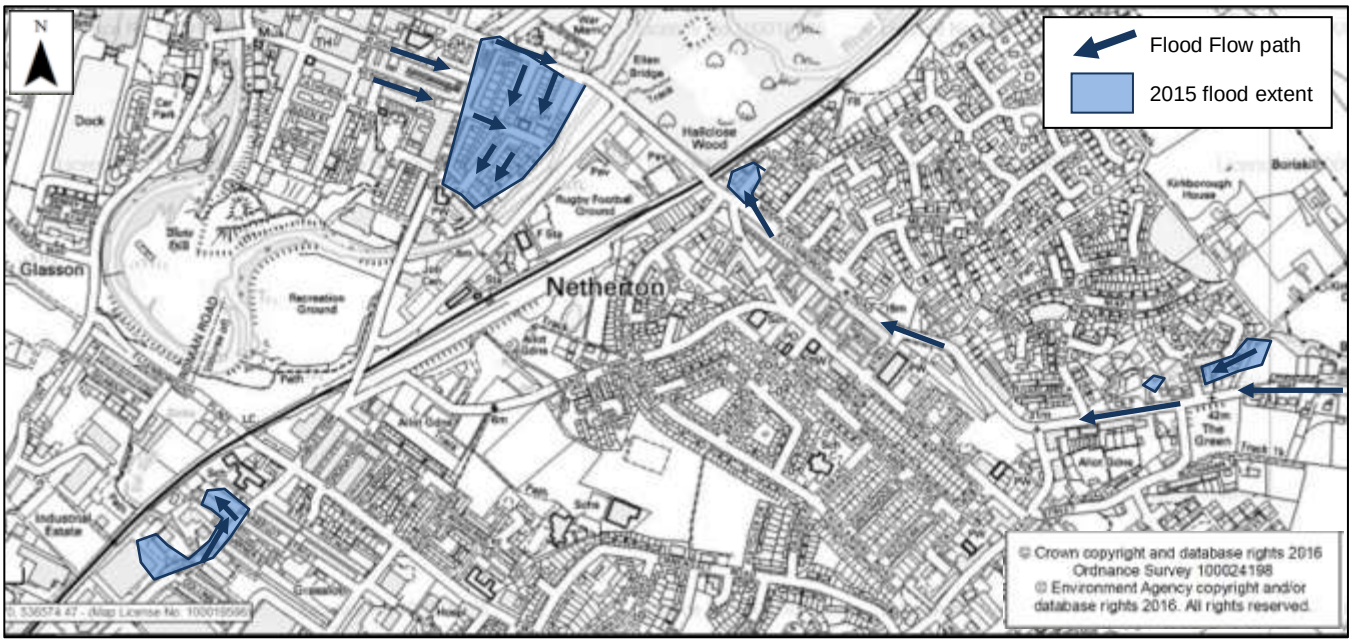


Figure 8: Summary of flood flow routes through Maryport

Due to the intensity of the rainfall event, and with ground already saturated, drains were overwhelmed and water followed down roads and paths resulting in flooding to property and gardens. Water became trapped in many locations, and continuing rainfall further increased the depth of this ponding.

Impacts and Likely Causes of Flooding

Sub-area 1a: Elbra Farm Close

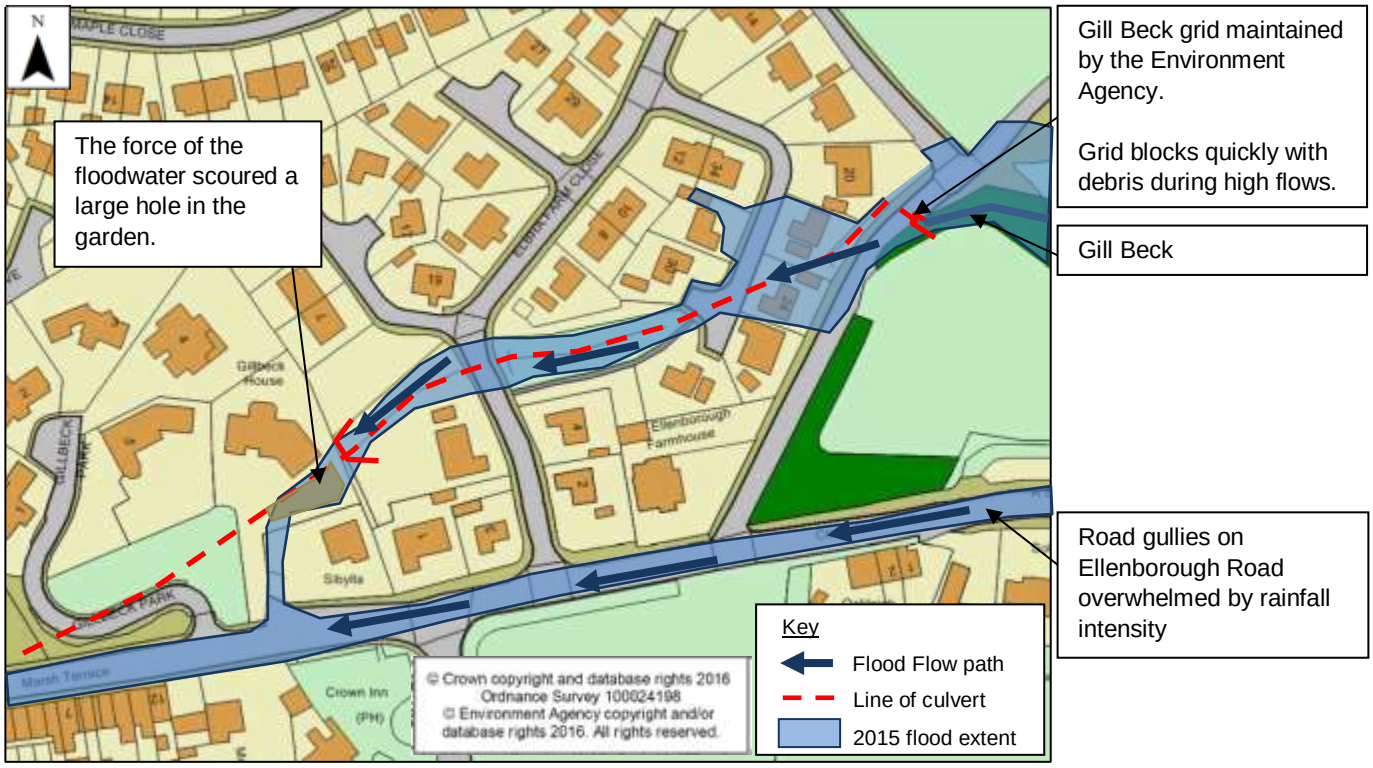


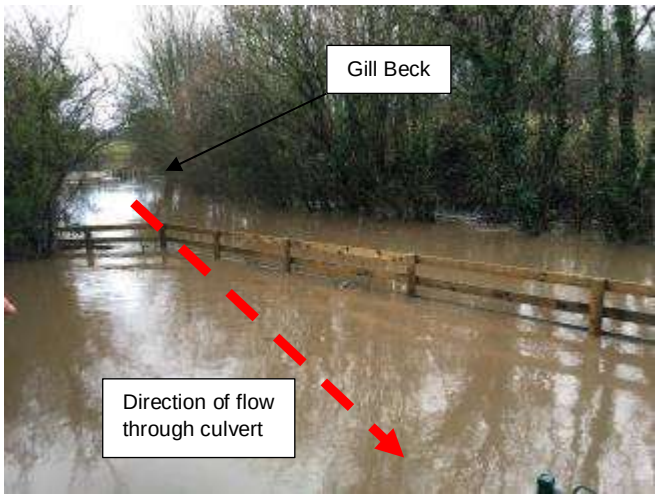
Figure 9: Gill Beck flooding mechanisms – Elbra Farm Close

Floodwater flowing down Gill Beck overwhelmed the culvert behind Elbra Farm Close. Water built up in the lane behind the properties before forcing a wall to collapse, **Photograph 1**, and flowing through into Elbra Farm Close and towards Sibylla, forming a large scour hole in the garden, **Photograph 2**. The Environment Agency maintains a debris grid on the culvert entrance of Gill Beck which was cleared of debris prior to the flood event on 3 December 2015.

Photograph 1: Elbra Farm Close – wall destroyed by floodwater

Photograph 2: Scour hole in the garden of Sibylla

A second rainfall event flooded properties on 27 January 2016. In circumstances similar to the December 2015 event, floodwater was prevented entering the Gill Beck culvert and spilled out onto the lane behind Elbra Farm Close, **Photograph 3** and **Photograph 4**. Floodwater flowed through the properties, **Photograph 5** and **Photograph 6**, and into Elbra Farm Close before entering the short open channel section downstream of the Close before entering the next section of culvert.



Photograph 3: Ponding behind Elbra Farm Close

Photograph 4: Gill Beck culvert - Blocked culvert / capacity excceded behind Elbra Farm Close

Photograph 5: Flow through Elbra Farm Close

Photograph 6: Flow between the houses from the lane behind the properties into Elbra Farm Close

Sub-area 1b: Hawthorn Avenue

Figure 10: Ellenborough Road and overland flow from Gill Beck

Approximately 6 properties are thought to have flooded internally from Gill Beck and overland flow from Ellenborough Road, **Figure 10**.

The intensity of the rainfall was such that the road gullies could not cope with the volume of water. Ellenborough Road (A594) became a torrent of water which flowed into Woodlands Drive then into Hawthorn Avenue.

During the flood event, the Fire and Rescue Service were requested by residents of Woodlands Drive. The call came between 18:00 and 19:00 on Thursday 3 December 2015 and an appliance was sent from Workington to assist.

Sub-area 2: Grasslot Street / Solway Trading Estate

Figure 11: Eel Sike flooding mechanisms

It is estimated that approximately 10 properties flooded within this area, **Figure 11**. The open section of Eel Sike, in front of Maryport Bodywork Centre, overflowed down Main Road then into Grasslot Street where properties were flooded. Large volumes of silt were deposited in this area.

During the flood event the Fire and Rescue Service were called by residents of Grasslot Street and Collins Terrace. The calls came at about 18:00hrs on Thursday 3 December 2015 and appliances were sent from Cockermouth and Maryport.

Sub-area 3: Lawson Street / Selby Terrace

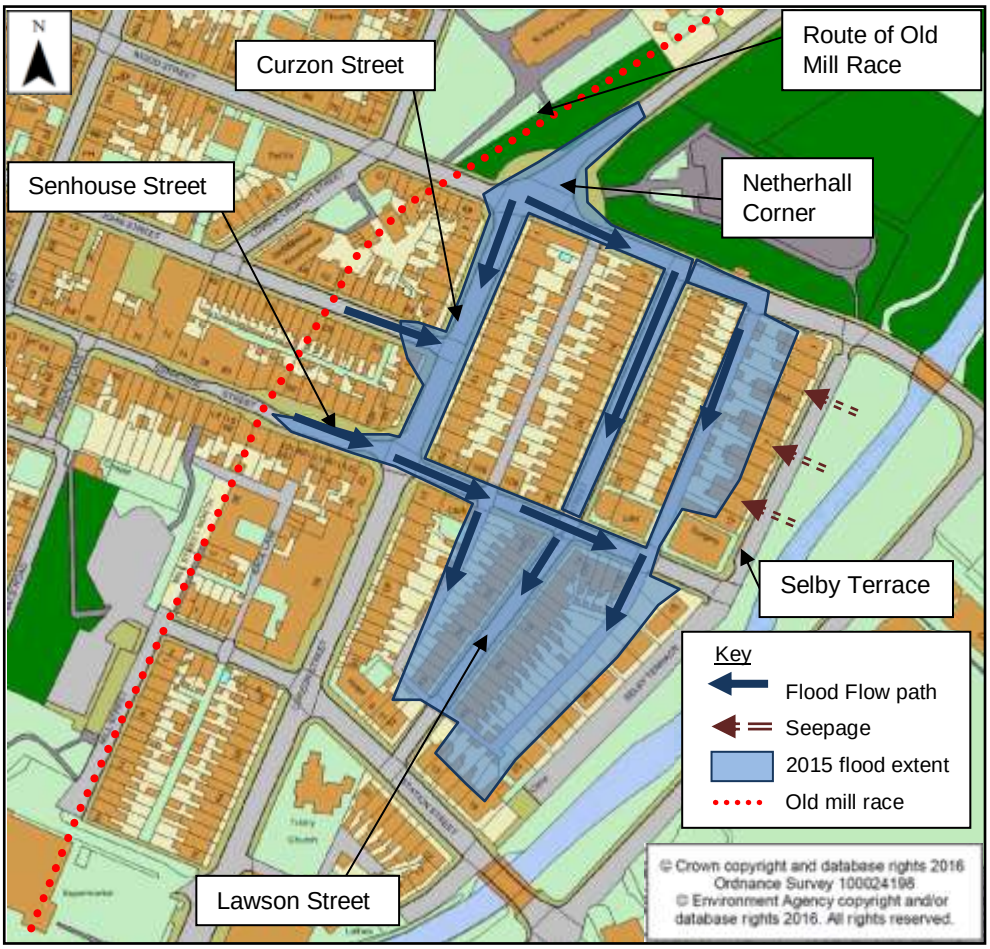


Figure 12: Surface Water Flooding Mechanisms

Certain areas within close proximity to Lawson Street were flooded from overland flows, routed by the road network, **Figure 12**. The direction of the flow was heavily influenced by the camber of the road and dropped kerbs. The water flowed down from Senhouse Street and Netherhall Corner, collecting in the low points within the Lawson Street area. Properties were also reported to flood from water seepage directly from the River Ellen. High river levels enabled water to pass through the sandstone wall aligning the river, and through the made ground into the basements. Not all properties on Selby Terrace have basements, but of those that exist, many are used as living spaces. Approximately 30 properties are thought to have flooded in this area.

The Fire and Rescue Service were called by residents of Lawson Street, Curzon Street, Station Street and Selby Terrace. The calls came between 17:45 on Thursday 3 December and 08:00 on Friday 4 December 2015. Appliances were sent from Cockermouth, Maryport and Workington to assist.

Environment Agency and Highways Flood Incident Response

Maryport has a tidal Flood Alert/Warning. Presently, this area is not covered by a Fluvial Flood Alert or a Flood Warning.

During May 2016 Cumbria County Council and the Environment Agency have carried out CCTV inspections of culverts and highways drains.

Maintenance Activities

The Environment Agency undertake regular debris grid clearance at Gill beck and Eel Sike as well as undertake regular CCTV surveys of Gill beck and Eel Sike.

- The Environment Agency deliver targeted maintenance on River Channels where the activity is beneficial to the reduction in flood risk. This could include:
    - Weed Control,
    - Grass Control,
    - Tree and Bush Management,
    - Invasive Non Native Species Control,
    - Gravel Removal, when justified through investigation and survey.

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
Community Resilience	Cumbria Local Resilience Forum *	Review and update plans to enable homes & business to be better prepared for flooding & reduce the impacts of flooding. For example, review of evacuation procedures / emergency response.	Complete
	Environment Agency, Cumbria County Council Highways, and Electricity North West.	Review the flood risk and resilience of infrastructure.	2016/17
	Cumbria Planning Group, Allerdale Borough Council, Cumbria County Council, and Environment Agency	Review Local Development Plans and Strategic Flood Risk Assessment to reflect current understanding of flooding.	2016/17
	Environment Agency	Raise awareness/engagement with community on the influence of the tides on flood flows.	2016/17
Upstream Management	Cumbria Floods Partnership (CFP) /Environment Agency	The CFP action plan will consider management options to reduce flood risk across the catchment. This may also include land use changes and or flood storage.	Complete
Maintenance	Cumbria County Council, United Utilities, and Allerdale Borough Council	Review and investigate drainage and sewage systems to better understand where improvements are required.	2016/17
	Environment Agency, United Utilities, and Cumbria County Council	Complete on-going inspections and repairs to assets that may have been damaged during the flood event.	Complete
	Environment Agency	Review maintenance programme within Maryport in response to the flooding event of 2015.	2016/17
Strengthening Defences	Environment Agency	The Environment Agency is carrying out a series of repairs to flood defence assets that were damaged during the floods as part of the c.£10m Asset Recovery Programme which covers Cumbria and	Complete

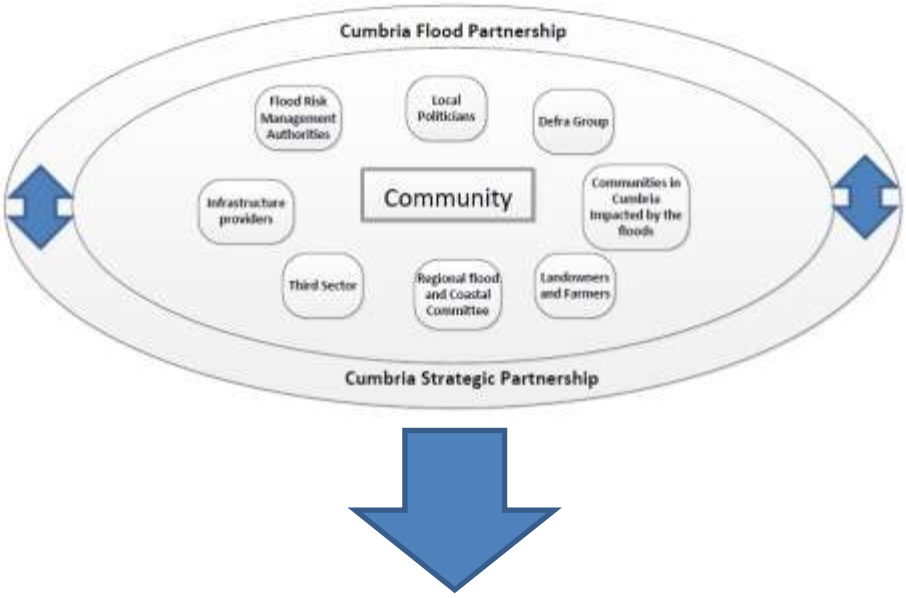
Cumbria Flood Partnership Theme	Action by	Recommended Action	Timescale
		Lancashire. This programme of repairs is scheduled to be complete before winter 2016/17.	
	Residents	Flooded properties to review effectiveness and improve flood resilience/ resistance measures to reduce impacts of future flooding. A grant of up to 5k is available to any resident that was internally flooded.	March 2017

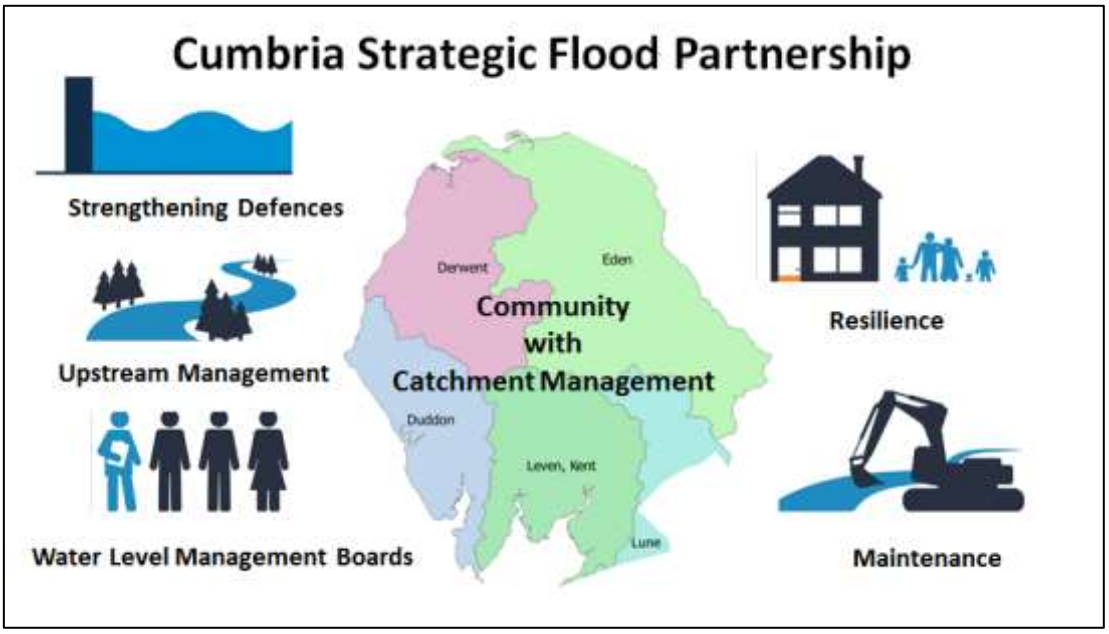
* The Cumbria Local Resilience Forum includes emergency services, local authorities, Cumbria County Council, Environment Agency, Maritime Coastguard Agency and health agencies along with voluntary and private agencies. Under the Civil Contingencies Act (2004) every part of the United Kingdom is required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

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:





Cumbria Strategic Flood Partnership

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

EA	Environment Agency
CCC	Cumbria County Council
UU	United Utilities
ABC	Allerdale Borough Council
LLFA	Lead Local Flood Authority
MSfWG	Making Space for Water Group
FAG	Flood Action Group
LFRMT	Local Flood Risk Management Team
FWMA	Flood and Water Management Act 2010
LDA	Land Drainage Act 1991
WRA	Water Resources Act 1991

Term	**Definition**
Aquifer	A source of groundwater comprising water-bearing rock, sand or gravel capable of yielding significant quantities of water.
Attenuation	In the context of this report - the storing of water to reduce peak discharge of water.
Catchment Flood Management Plan	A high-level planning strategy through which the EA works with their key decision makers within a river catchment to identify and agree policies to secure the long-term sustainable management of flood risk.
Culvert	A channel or pipe that carries water below the level of the ground.
De Facto Flood Defence	A feature or structure that may provide an informal flood defence benefit but is not otherwise designed or maintained by the Environment Agency
Flood Defence	Infrastructure used to protect an area against floods as floodwalls and embankments; they are designed to a specific standard of protection (design standard).
Floodplain	Area adjacent to river, coast or estuary that is naturally susceptible to flooding.
Flood Resilience	Measures that minimise water ingress and promotes fast drying and easy cleaning, to prevent any permanent damage.
Flood Risk	The level of flood risk is the product of the frequency or likelihood of the flood events and their consequences (such as loss, damage, harm, distress and disruption)
Flood Risk Regulations	Transposition of the EU Floods Directive into UK law. The EU Floods Directive is a piece of European Community (EC) legislation to specifically

Term	Definition
	address flood risk by prescribing a common framework for its measurement and management.
Flood and Water Management Act	Part of the UK Government's response to Sir Michael Pitt's Report on the Summer 2007 floods, the aim of which is to clarify the legislative framework for managing surface water flood risk in England.
Flood Storage	A temporary area that stores excess runoff or river flow often ponds or reservoirs.
Flood Zone	Flood Zones are defined in the NPPF Technical Guidance based on the probability of river and sea flooding, ignoring the presence of existing defences.
Flood Zone 1	Low probability of fluvial flooding. Probability of fluvial flooding is < 0.1%
Flood Zone 2	Medium probability of fluvial flooding. Probability of fluvial flooding is 0.1 – 1%. Probability of tidal flooding is 0.1 – 0.5 %
Flood Zone 3a	High probability of fluvial flooding. Probability of fluvial flooding is 1% (1 in 100 years) or greater. Probability of tidal flooding is 0.5%(1 in 200 years)
Flood Zone 3b	Functional floodplain. High probability of fluvial flooding. Probability of fluvial flooding is >5%
Fluvial	Relating to the actions, processes and behaviour of a water course (river or stream)
Fluvial flooding	Flooding by a river or a watercourse.
Freeboard	Height of flood defence crest level (or building level) above designed water level
Functional Floodplain	Land where water has to flow or be stored in times of flood.
Groundwater	Water that is in the ground, this is usually referring to water in the saturated zone below the water table.
Inundation	Flooding.
Lead Local Flood Authority	As defined by the FWMA, in relation to an area in England, this means the unitary authority or where there is no unitary authority, the county council for the area, in this case Cumbria County Council.
Main River	Watercourse defined on a ‘Main River Map’ designated by DEFRA. The EA has permissive powers to carry out flood defence works, maintenance and operational activities for Main Rivers only.
Mitigation measure	An element of development design which may be used to manage flood risk or avoid an increase in flood risk elsewhere.
Overland Flow	Flooding caused when intense rainfall exceeds the capacity of the drainage systems or when, during prolonged periods of wet weather, the soil is so saturated such that it cannot accept any more water.
Residual Flood Risk	The remaining flood risk after risk reduction measures have been taken into account.
Return Period	The average time period between rainfall or flood events with the same intensity and effect.

Term	Definition
River Catchment	The areas drained by a river.
Sewer flooding	Flooding caused by a blockage or overflowing in a sewer or urban drainage system.
Sustainability	To preserve /maintain a state or process for future generations
Sustainable drainage system	Methods of management practices and control structures that are designed to drain surface water in a more sustainable manner than some conventional techniques.
Sustainable development	Development that meets the needs of the present without compromising the ability of future generations meeting their own needs.
Sustainable Flood Risk Management	Sustainable Flood Risk Management promotes a catchment wide approach to flooding that uses natural processes and systems (such as floodplains and wetlands) to slow down and store water.
Topographic survey	A survey of ground levels.
Tributary	A body of water, flowing into a larger body of water, such as a smaller stream joining a larger stream.
Watercourse	All rivers, streams, drainage ditches (i.e. ditches with outfalls and capacity to convey flow), drains, cuts, culverts and dykes that carry water.
Wrack Marks	An accumulation of debris usually marking the high water line.
1 in 100 year event	Event that on average will occur once every 100 years. Also expressed as an event, which has a 1% probability of occurring in any one year.
1 in 100 year design standard	Flood defence that is designed for an event, which has an annual probability of 1%. In events more severe than this the defence would be expected to fail or to allow flooding.

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

The Flood 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 the EA including section 18 of the Act which states:

The Environment Agency must report to the Minister about flood and coastal erosion risk management.

(2) In particular, the report must include information about the application of the national flood and coastal erosion risk management strategies under sections 7 and 8.

(3) The Minister may make regulations about—

(a) the times or intervals at which a report must be made, and
(b) the content of a report.

(4) In this section "the Minister" means—

(a) the Secretary of State in relation to flood and coastal erosion risk management in England, and
(b) the Welsh Ministers in relation to flood and coastal erosion risk management in Wales**.**

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 are 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 process 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: Links to other information on Flooding

Cumbria County Council (Local Flood Risk Management):
lfrm@cumbria.gov.uk, www.cumbria.gov.uk, tel: 01228 211300

Cumbria County Council (Highways):
highways@cumbria.gov.uk, www.cumbria.gov.uk, tel: 0845 609 6609

United Utilities: tel: 0845 746 2200

Allerdale Borough Council tel 01900 702702

Flood and Water Management Act 2010:
http://www.legislation.gov.uk/ukpga/2010/29/contents

Sign up for Flood Warnings
https://www.gov.uk/sign-up-for-flood-warnings

Environment Agency – Prepare your property for flooding; a guide for householders and small businesses to prepare for floods
https://www.gov.uk/government/publications/prepare-your-property-for-flooding

Environment Agency – What to do before, during and after a flood: Practical advice on what to do to protect you and your property
https://www.gov.uk/government/publications/flooding-what-to-do-before-during-and-after-a-flood

Environment Agency – Living on the Edge: A guide to the rights and responsibilities of riverside occupiers
https://www.gov.uk/government/publications/riverside-ownership-rights-and-responsibilities

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

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আপনি যদি এই তথ্য আপনার নিজের ভাষায় পেতে চান তাহলে অনুগ্রহ করে **01228 606060** নম্বরে টেলিফোন করুন।

如果您希望通过母语了解此信息，
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Appendix 4: Flood Warnings and Alerts

- **011WAFWE- Rivers Wampool and Ellen**

  Alert issued on Thursday 03/12/2015 at 17:51
  Alert removed on Friday 04/12/2015 at 06:58
  Alert issued on Friday 04/12/2015 at 15:10
  Alert removed on Thursday 10/12/2015 at 16:18
  Customers in Flood Alert area registered on FWD: 59
  Contacts (landline, mobile, email etc) in Flood Alert area registered on FWD: 187
  Successful contacts: 154
  Unsuccessful contacts: 33

  Alert Message:
  A Flood Alert has been issued by the Environment Agency for the Rivers Wampool and Ellen. Flooding is possible for Rivers Wampool and Ellen. Low lying land and roads will be affected first. Be prepared to protect yourself, family, pets and property.
  Heavy and persistent rainfall is forecast to continue until this evening. With the ground already saturated the river levels are expected to rise and we may see some localised flooding to low lying land and roads. An outlook for the weekend shows although Friday is looking a relatively dry day, the rain will again become heavy and persistent in the early hours of Saturday continuing right through until Sunday. As River levels are already high, we may see some localised flooding throughout Cumbria.

Appendix 5: Future works and options

Figure 13: Old Mill Race circa 1850.

Figure 14: Updated map showing how the Mill Race has been altered and culverted.

Due to various issues with the old mill race Cumbria County Council are in discussions to provide an overflow from the A596 back through the Netherhall Grounds. Therefore negating the regular highway flooding and reduce property flood risk.
CCC and the EA are also looking at upstream measures that could involve storage areas and slowing of the flows for intense storms. Preliminary walks have already been undertaken along Gill Beck. Eel Sike is also being investigated for upstream slow the flow measures.