

Seaton

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	D.Coyle	D.Coyle	06/01/2017
Published	A.Harrison	D Coyle	D Coyle	08/09/2017

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Executive Summary

Seaton 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.

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 Seaton 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 Seaton, small watercourses became inundated with roads becoming major flow routes and any failures in infrastructure quickly becoming compromised this resulting in the internal flooding of nine properties. 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 8 summary recommended actions.

Any additional information that residents and others can provide to 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>

Flooding History

Seaton has suffered from minor flooding over the years with constant highway problems near the old railway bridge. This event was the worst recent event with the highest number of internally flooded properties recorded.

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Event Background

Flooding Incident

Seaton



Figure 1: Location Plan

Seaton is situated approx. 2 miles to the North east of Workington and 5 miles to the south of Maryport. There is a main river, Lingbeck that feeds through the village.

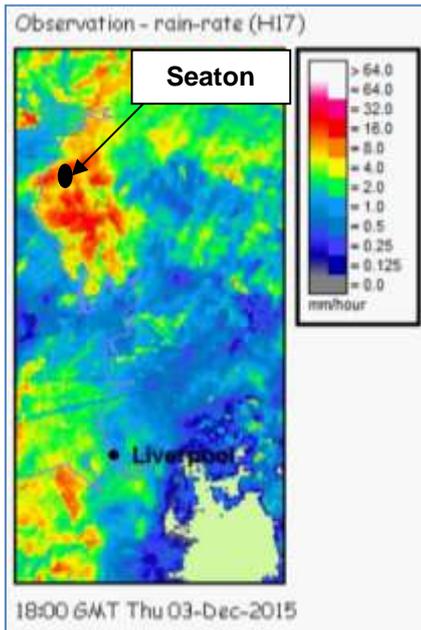


Figure 2: Location of Ling beck through the village and flooded areas.

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 Seaton. This can be undertaken through site visits, talking to affected residents, door knocking, flooded property lists provided by Allerdale Borough Council and information passed on through various other sources.

Map of Flow Routes



Figure 3 Flooded property locations and flow routes

21 Brookside Road, High Seaton

Water flowed from the land behind the properties and down the public footpath. Rear of property has low threshold so was vulnerable to heavy flows once the private drainage could not cope.

1 Camerton Road Low Seaton

Water became trapped against the kitchen wall and the conservatory. It seems the patio area is higher than the conservatory floor and kitchen walls and water seeped through the walls. The private drainage became overwhelmed so the property became vulnerable due to the low nature of the property.

9 Huntington Place, High seaton

Property relies on private drainage system to cope as it is low lying. The intensity of the storm meant that drainage systems were overwhelmed leaving water to build up. It is unknown the severity of the flooding at this property

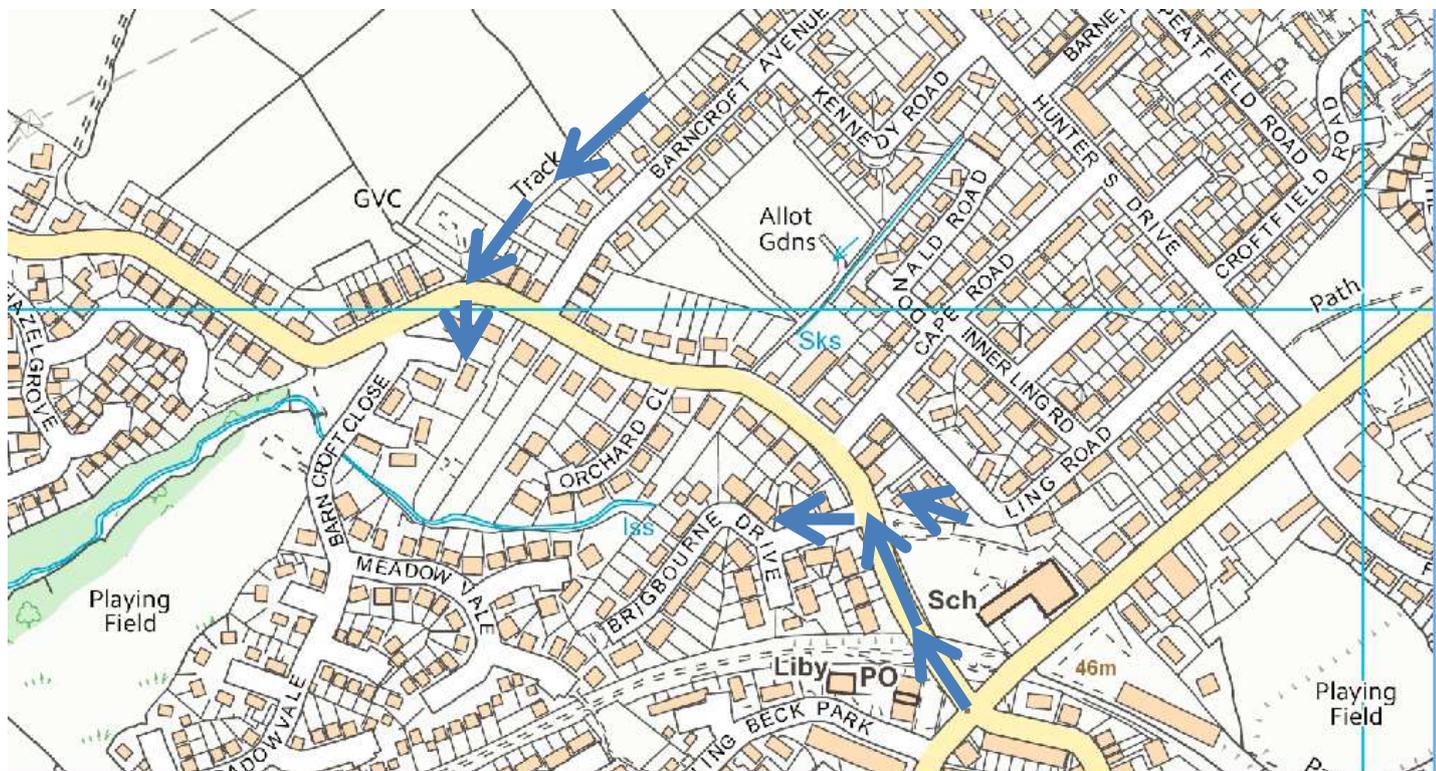


Figure 4 Brigbourne Drive, Ling Road and Barncroft Close flow routes

Brigbourne Drive

Water flowed from the flooded area under the railway line down Lowca Lane before flowing into the junction and down the driveways of the low lying properties. The force of the water brought down a wall separating number 4 and 6.

This is the first time the properties have flooded.

Numbers 2, 4, 6 and 8 were all flooded internally

Ling Road

Lingbeck (main river) is culverted through the rear garden of number 47 Ling road, it is unclear if the water surcharged from the watercourse. The gardens are low lying thus allowing the water to build up before entering the properties.

Numbers 45 and 47 were internally flooded.

Barncroft Close

Water flowed from the fields to the north and down the farm track before crossing the public highway and through the affected properties

Numbers 1 and 7 were internally flooded.

Likely Causes of Flooding

The flooding was caused by the sheer volume of water falling onto an already saturated catchment. The roads quickly become inundated and act as conduits. 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.

There are issues with properties being vulnerable during intense storms due to being of a low lying nature and a dependency on the small private drainage systems within the property grounds.

The hydraulics and open and closed sections of Ling beck also meant properties within the vicinity of Ling Beck were vulnerable.

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 Highways	Survey highway drainage systems in Lowca Lane area.	Completed
	EA	Survey the culverted section of Lingbeck.	Completed
	EA	Develop possible future scheme for Lingbeck if feasible.	Scheme progressed and is underway.
	CCC/Landowners	Look to eradicate water issuing from old railway line onto C2001	Ongoing
Upstream Management	CCC	Ensure all new development complies with current greenfield runoff rates and improve where possible.	Ongoing
	CCC/Landowners/community/Catchment partnership	Look into the possibility of slowing the flow of Lingbeck upstream of the village.	Possible future works.
Community Resilience	CCC	Provide an escape flow route for water to bypass properties on grass verge in the Barncroft Close area.	Completed.
	residents	Look into using grant money to provide property level protection. All locations	2016 (Grant money applications end March 2017)

Resilience Forum

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.

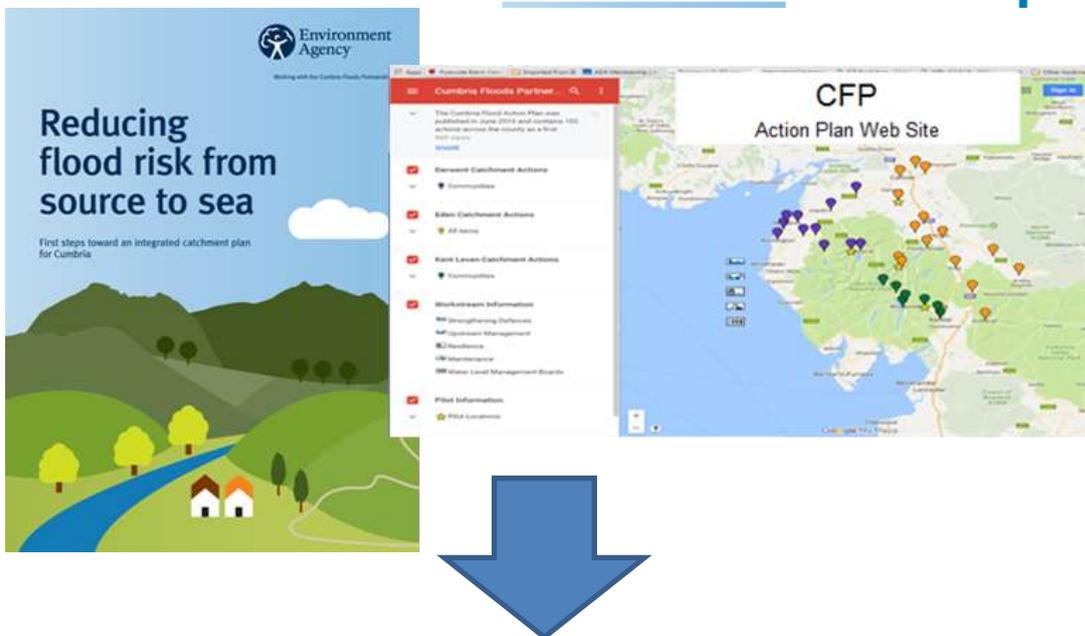
Residents and property owners who are aware that they are at risk of flooding should take action to ensure that they and their properties are protected. Community resilience is important in providing information and support to each other if flooding is anticipated. Actions taken can include laying sandbags 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:

Cumbria Flood Partnership



NEW Cumbria Strategic Flood Partnership



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

<p>2016 – Cumbria Pioneer</p> <p>DEFRA 25 Year Environment Plan and vision New and innovative ways of working Making best use of resources Working at Catchment scale through engagement and commitment Place based decision making within DEFRA vision Lead – Jez Westgarth, Environment Agency</p>	<p>January 2016 - Cumbria Flood Partnership</p> <p>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</p>	<p>2013 – LLFA Cumbria Strategic Partnership</p> <p>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</p>
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Communities



Communities working together across Cumbria

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

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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.

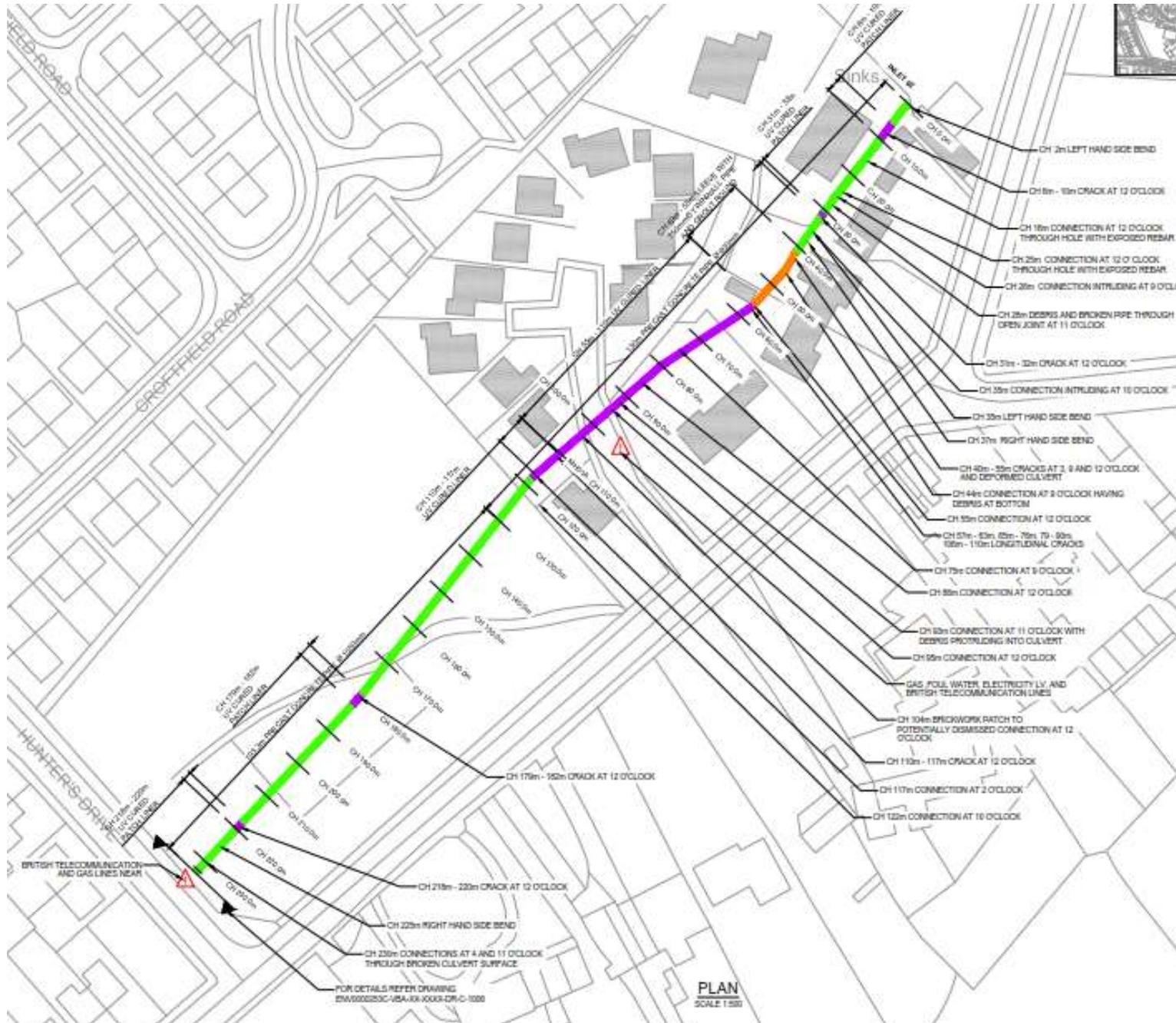
Flood risk in Cumbria is managed through the Making Space for Water process which involves the cooperation and regular meeting of the Environment Agency, United Utilities, District/Borough Councils and CCC's Highway and LFRM Teams to develop processes and schemes to minimise flood risk. The MSfWGs meet 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.

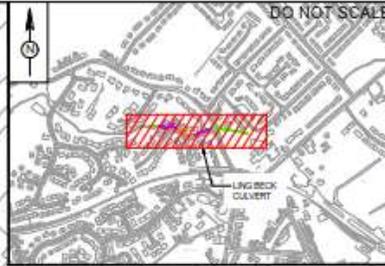
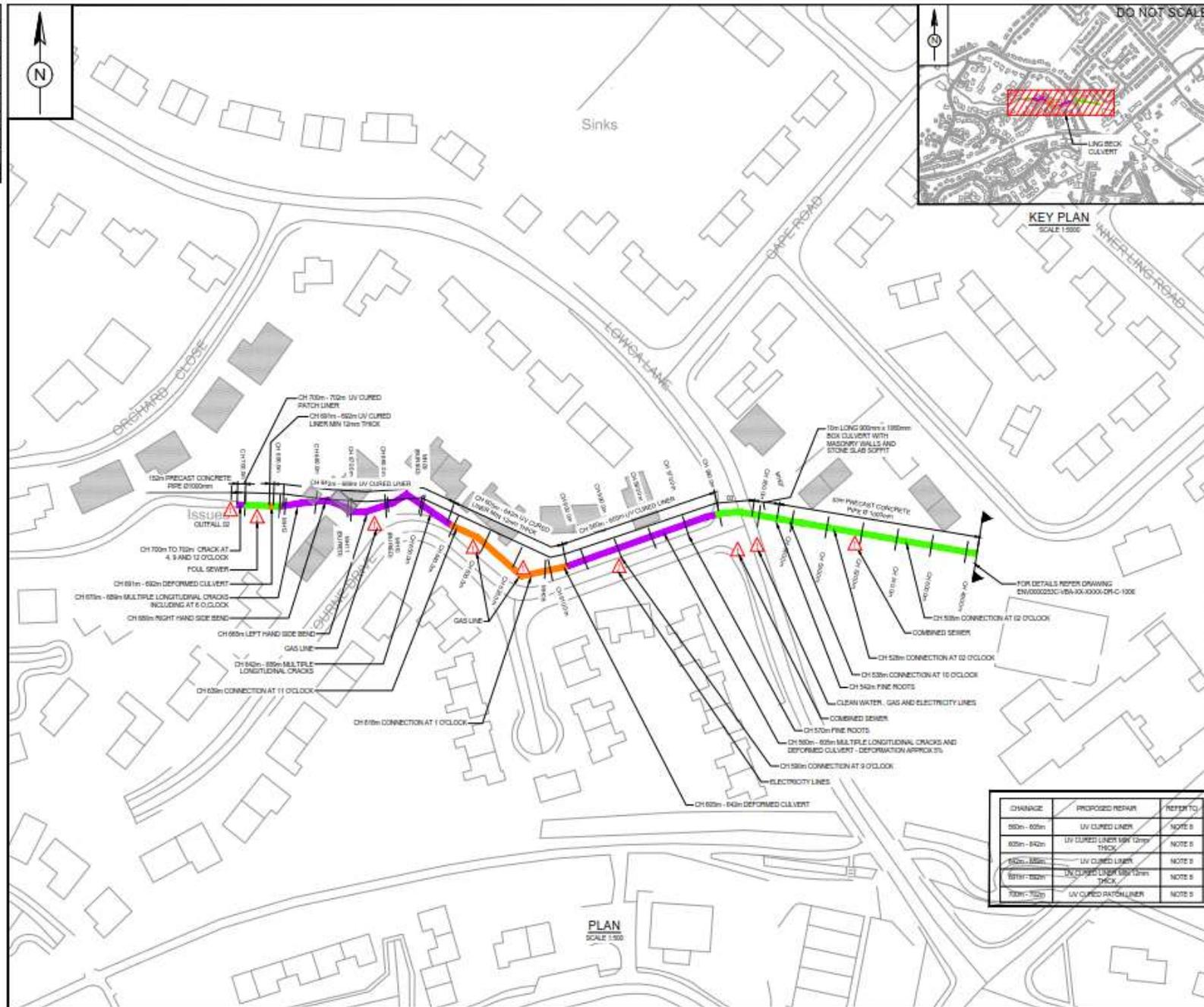
Where minor works or quick win schemes can be identified, these will be prioritised and subject to available funding and resources will be carried out as soon as possible. Any major works requiring capital investment will be considered through the Environment Agency's Medium Term Plan or a partners own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

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Appendix 3: EA asset recovery work





SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

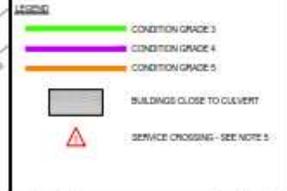
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION
FLOODING OF SITE, WORKS NEAR WATERCOURSE, CONFINED SPACES, WORKS FROM HEIGHT, PUBLIC INTERACTION, WORKS NEAR SERVICES, HAZARDOUS SUBSTANCES, POLLUTION OF WATERCOURSE, POOR CONDITION OF EXISTING STRUCTURES, POOR GROUND CONDITION

MAINTENANCE/CLEANING
FLOODING OF SITE, WORKS NEAR WATERCOURSE, CONFINED SPACES, WORKS FROM HEIGHT, PUBLIC INTERACTION, POLLUTION OF WATERCOURSE

DECOMMISSIONING/DEMOLITION
AS CONSTRUCTION

- NOTES**
1. THE PROPOSED REPAIRS ARE BASED ON THE CCTV SURVEY LAID OUT IN FEBRUARY 2016 AND JUNE 2017 BY ANDERMAN LTD.
 2. THE CULVERT ALIGNMENT IS APPROXIMATE ONLY - LOCATION OF SENDS, MANHOLES AND ACTUAL ALIGNMENT TO BE CONFIRMED ON SITE PRIOR TO COMMENCING THE WORKS.
 3. ALL CHANGES ARE APPROXIMATE ONLY AND HAVE BEEN TAKEN FROM THE CCTV SURVEY.
 4. FOR EXACT LOCATION OF MANHOLES, GARGOYLES, BOUNDARY WALLS AND FENCES REFER TO SECTION 4 OF THE FINAL MEMO ENV000253C-VBA-XX-XXXX-DR-C-1001.
 5. FOR DETAILS ON SERVICES REFER TO THE COMBINED SERVICE PLANS ENV000253C-VBA-XX-XXXX-DR-C-1008 TO 1010.
 6. COSMETIC OR MINOR DEFECTS ARE NOT SHOWN.
 7. PROPOSED REPAIRS ARE ONLY REPAIRS TO BRING ALL CULVERT SECTIONS TO CONDITION GRADE 3 IN ACCORDANCE WITH THE EAS CONDITION ASSESSMENT MANUAL.
 8. FOR REPAIR OPTIONS REFER TO SECTION 6 OF THE FINAL MEMO ENV000253C-VBA-XX-XXXX-DR-C-1001.



REV	DATE	DESCRIPTION	BY	CHKD
1.1	10/04/17	FOR CONSULTATION	...	...
2.1	10/04/17	FOR CONSULTATION	...	...
3.1	10/04/17	FOR CONSULTATION	...	...
4.1	10/04/17	FOR CONSULTATION
5.1	10/04/17	FOR CONSULTATION

FOR CONSTRUCTION

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ASSET RECOVERY PROGRAMME
CUMBRIA AND LANCs
5149199

Project Title
**LING BECK
CONDITION DEFECTS & PROPOSED
REPAIRS PLAN
SHEET 03 OF 03**

REV	DATE	DESCRIPTION	BY	CHKD
AS SHOWN	18/12/2016	...	...	...
A1	18/12/2016	...	...	...

ENVO000253C-VBA-XX-XXXX-DR-C-1007 C 1

CHANGE	PROPOSED REPAIR	REFER TO
650m - 675m	UV CURED LINER	NOTE 5
675m - 690m	UV CURED LINER 150mm THICK	NOTE 5
690m - 705m	UV CURED LINER	NOTE 5
705m - 720m	UV CURED LINER 150mm THICK	NOTE 5
720m - 735m	UV CURED PATCH LINER	NOTE 5

PLAN
SCALE 1:500

Appendix 4: Questions and answers taken from the draft meeting with the public.

Seaton stage 3 meeting - 17 residents attended

Questions/comments

Q: EA have surveyed Ling Beck. Concerns raised that this has not been completed, especially Huntingdon Gardens end (advised by contractors that they couldn't get the machine down and that they needed 5 people for safety etc).

A: EA have completed the surveys and work is beginning imminently to improve the hydraulics of Ling Beck through Seaton

Q: Need to add Sunny Brae and Rumford House as flooded properties (need to check as it sounds like Sunny Brae flooded an out building)

A: The flood report only takes into account properties that are known to have flooded internally to an habitable part of the property. It is still unclear if these properties were flooded internally.

Q: Concerns raised over how much water would run from the new Story site into Ling Beck.

A: The Storys site has a large attenuation pond from the new development so the water will be released at the current greenfield levels, it has also provided 50 % extra storage for climate change which is over and above the current guidelines so will improve the situation during larger rainfall events.

Q: Have any surveys been carried out on the Main Road as it floods under the bridge on a regular basis.

A: Highways have carried out surveys from the main road all the way down Lowca Lane. We are currently applying for funding to survey the culvert that runs under the rugby club to see how all the area is linked.

Q: Is there anywhere residents can find out when the gullys are due to be cleaned.

A: The gully programme can be requested by e mailing betterhighways.allerdale@cumbria.gov.uk

Q: Can residents be made aware of the contents of the Ling Beck EA report.

A: The EA have been liaising with the affected people and would be willing to share the report. They are also as previously stated beginning to carry out remedial works to the watercourse.

Appendix 5: 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
www.Allerdale.gov.uk

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.

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，
请致电 01228 606060

Jeigu norétumète 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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