Introduction to Kendal Flood Risk Management Scheme

In July 2017 and February 2018 we shared options to reduce flood risk in Kendal. Since then we have:

• undertaken surveys, ground investigations and environmental assessments
• developed our proposals, assessed their possible environmental impacts and the costs in accordance with the rules set by government
• discussed these with local authorities and key landowners

This work has helped us shape the ‘preferred options’ for managing future flood risk in Kendal.

Our key aims for the future flood risk management scheme are to:

• reduce the flood risk from the Rivers Kent and Mint and other minor watercourses
• support South Lakeland District Council's regeneration objectives
• retain footpaths and cycleways which already exist along both rivers
• open up and maximise views of and across the rivers
• improve the river corridor for wildlife
• improve access to the river corridor for maintenance and debris removal

We have taken account of and will continue to consider:

• feedback from previous consultations
• disturbance to local residents and businesses
• potential conflicts between flood protection, public access and nature conservation interests that are protected by law
• valued heritage, archaeological and landscape interests, conservation areas, scheduled structures and listed buildings

Across Kendal, the onset of flooding is as low as 1 in 5 years which means that in any given year those at highest risk face a 1 in 5 chance of experiencing flooding.
Overview of Kendal Flood Risk Management Scheme

The Kendal Flood Risk Management scheme will protect the community by managing flood risk from source to sea and will consider numerous elements including; strengthening defences, upstream management, maintenance and resilience.

The scheme will provide better protection and greater resilience for Kendal, by reducing the risk of flooding to approximately 1,000 residential properties and the impact of flooding to over 1,500 businesses.

This includes businesses within the North Kendal Industrial Area which employs over 6,100 people and contributes millions to the local economy.

The preferred option to manage flood risk in Kendal involves:

- Construction of linear defences (walls and embankments)
- Improvements to the Stock Beck drainage system in Sandylands
- Environmental enhancements at specific sites
- Strengthening some buildings and existing river walls
- Floodgates to act as access through the flood defences, and will be closed in advance of a flood
- Natural Flood Management and upstream storage
Kendal Flood Risk Management Scheme
Phase 1 - Linear Defences

Kendal phase 1 focuses on the construction of linear flood defences using walls and embankments through Kendal.

The proposed new flood defences will start at Kentrigg on the River Kent and the A6 on the River Mint. The defences will protect the North Kendal Industrial Areas working downstream through the centre of the town, to include Helsington.

It will involve the construction of approximately 6.7km of linear flood defences using a combination of walls and embankments.

Some pathways or roads will be raised and specific lengths of existing walls will be improved.

The height of linear flood defences will typically range from 0.3m to 1.5m.

They will vary in height throughout the town and will not be continuous, as the defences will tie into existing high ground in some places.

Overall the proposed scheme will significantly reduce the risk of flooding to a 1% chance in any given year. Through Kendal town centre, the linear defences on their own will reduce the risk of flooding to between a 2% and 5% chance in any one year.
Kendal Flood Risk Management Scheme
Phase 1 - Linear Defences

Wall types

Flood defence walls will have a patterned surface or be clad in stone to match the local area.

Glass panels may be used to retain key riverscape views, especially in the conservation area of Kendal.

Flood defence walls will be set back from the river where possible to allow maximum space for floodwater, which helps reduce the height of the walls.

Attractive wall finishes using printed concrete or pre-cast/natural stone facings

Use of glass to maximise original outlook
Kendal Flood Risk Management Scheme
Phase 1 - Stock Beck

We are investigating the diversion of flows from the upper catchment of Stock Beck into the River Mint, and improvements to the drainage system in the Sandylands area of the town.

This will help to limit the amount of water flowing through culverts and a pumping station will be constructed near Stramongate weir to pump Stock Beck and any surface water when river levels are high.

The outfall to Calder Drive flood storage basin will be optimised to provide a 1% (1 in 100 year) standard of protection.

Existing footpaths and cycleways along the River Kent and Mint will be retained and improved in some areas.

Existing maintenance access points will be improved to allow debris removal and vegetation management within the river channel.

We will make improvements to specific sections of the culvert where we know it is already damaged.
Local Enhancement Opportunities

We are committed to reducing negative impacts and improving the local environment for humans and wildlife. The scheme will enhance public access and improve recreational opportunities along the river corridor.

Floodplain habitats will be enriched through tree planting and creation of wetland features. Removal of trees from key points along the river banks will open up scenic views of the River Kent and we will replant at other sites. The flood scheme will also provide opportunities for public art and improved access to the riverside.

Incorporation of artwork from local schools and artists
Protection of existing access paths
Incorporation of public open spaces
Sites of Community Interest

Parish Church and Abbott Hall
The scheme will protect the Parish Church and Abbott Hall, which are key heritage buildings at the heart of the Kendal conservation area.

We have taken great care to propose defence walls that are considerate to the beautiful riverscape.

The proposed defences use materials that complement the heritage setting of the area and are as unobtrusive as possible.
Sites of Community Interest

Waterside

The flood defences will be designed and constructed to be sympathetic to the surrounding environment. Where needed, the defence walls will maintain the existing access for riverside properties. It is proposed that glass panels will be incorporated into the defences to preserve key views of the riverscape and heritage assets within the town.
Sites of Community Interest

New Road

We are working closely with South Lakeland District Council in respect of the common land space along New Road.

In partnership with South Lakeland District Council and Cumbria County Council, our proposed defences will accommodate access to common land on New Road and the replacement Gooseholme footbridge.
Natural Flood Management

We are working closely with landowners and partner organisations to gather their expert local knowledge and advice to identify opportunities where Natural Flood Risk measures can be delivered.

This is part of a pilot project to test and improve our understanding of how utilising natural processes can reduce the extent of flooding to communities across the Kent Catchment, as well as shaping how we fully integrate these measures across the County in the future.
Examples of measures being discussed and designed include soil aeration, land management adaptations, controlling surface water, hedge and swale creation to help re-direct surface water flows, woodland creation, offline temporary storage, river and floodplain restoration. If you would like further information about Natural Flood Risk Management, visit our online Evidence Directory here: www.gov.uk/government/publications/working-with-natural-processes-to-reduce-flood-risk
Resilience Advice

The Kendal flood risk management scheme will reduce the risk of flooding, but it is not possible to remove the risk entirely. Climate change has the potential to increase the probability and impact of flooding. Flooding is complex and can occur from various sources, however the Environment Agency only has responsibilities in relation to flooding from main rivers and the sea. Flooding is natural and can happen suddenly, so you need to be ready in case you are affected.

Be prepared
To find out if you are at risk of flooding, and for more information on how to prepare and protect your home visit www.environment-agency.gov.uk or ring Floodline on 0345 988 1188
To find out if you can register to receive free flood warnings direct to your telephone contact Floodline on 0345 988 1188
Consider creating a personal flood plan, and undertake actions to protect your property
Investigate the potential of installing property level resistance measures to your home, or making your property more resilient inside

Contact us
If you would like to contact staff at the Environment Agency to discuss any of the information shared today, you can send us a message at KendalFRMS@environment-agency.gov.uk

www.gov.uk/floodsdestroy

Floodline
0345 988 1188 (24 hr service)
Or type talk 0345 602 6340
## What next and key dates

### Kendal

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>26 September 2018</td>
<td>Kendal public drop in</td>
</tr>
<tr>
<td>October 2018 – Jan 2019</td>
<td>Engagement with affected landowners and planning application submitted for Kendal Phase 1 flood defences</td>
</tr>
<tr>
<td>November 2018 – January 2019</td>
<td>European Regional Development Fund bid submitted for North Kendal Industrial Area defences</td>
</tr>
<tr>
<td>October 2018 – November 2018</td>
<td>Environment Agency Outline Business Case submitted to commit to the preferred scheme</td>
</tr>
<tr>
<td>October 2018 onwards</td>
<td>Ground Investigations and other survey work</td>
</tr>
<tr>
<td>October 2018 onwards</td>
<td>Detailed design of Kendal Flood Defence Scheme</td>
</tr>
<tr>
<td>February - April 2019</td>
<td>Environment Agency Full Business Case submission and approval for construction of the defences</td>
</tr>
<tr>
<td>May 2019 – March 2021</td>
<td>Construction of Kendal Phase 1 Flood Defence Scheme</td>
</tr>
<tr>
<td>2020 - 2022</td>
<td>Construction of Kendal Phase 2 Flood storage</td>
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</tbody>
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### Burneside, Staveley and Ings

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Event Description</th>
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</thead>
<tbody>
<tr>
<td>17 October 2018 3.30 - 7pm</td>
<td>Staveley public drop-in at the Village Hall</td>
</tr>
<tr>
<td>19 October 2018 3.30 - 7pm</td>
<td>Burneside public drop-in at the Cricket Club</td>
</tr>
<tr>
<td>Winter 2018 onwards</td>
<td>Ground Investigation &amp; other survey work</td>
</tr>
<tr>
<td>Winter 2018</td>
<td>Detailed design</td>
</tr>
<tr>
<td>Early Summer 2019</td>
<td>Engagement with affected landowners and planning application submitted</td>
</tr>
<tr>
<td>Autumn 2019 – Spring 2021</td>
<td>Construction</td>
</tr>
</tbody>
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Ongoing work

In order to deliver this flood risk management scheme, we are currently undertaking the following work:

• Ecological surveys and habitat assessments for important and protected species – these have included otters, pearl mussels, crayfish, water starwort, bats and great crested newts

• Tree surveys

• Geomorphological assessments

• Topographical surveys

• Ground investigations to assess geotechnical conditions and the potential for land contamination