Agenda

Meeting held in private: **Environment Directorate - Corporate Director and Executive Member - Highways and Transportation**

To: **Councillor Malcolm Taylor.**

Date: **Friday, 19 December 2025**

Time: **9.30 am**

Venue: **Via Microsoft Teams**

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Business

Items for Corporate Director decision

1. Proposed Introduction of a 20mph Speed Limit on Main Street and Water Lane, Kirk Smeaton *(Pages 3 - 22)*

2. Harrogate Transport Improvements Programme 2 Outcomes *(Pages 23 - 40)*

3. Storm Darragh: Section 19 on the Derwent Catchment *(Pages 41 - 140)*

4. Joining the National Parking Platform or procuring a single App for North Yorkshire *(Pages 141 - 158)*

5. Additional Environment Agency Local Levy Funding for the Upper Dales Flood Alleviation Scheme *(Pages 159 - 240)*

Barry Khan
Assistant Chief Executive
(Legal and Democratic Services)

County Hall
Northallerton

Thursday, 11 December 2025

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North Yorkshire Council

Environment Executive Members

19 December 2025

Proposed Introduction of a 20mph Speed Limit on Main Street and Water Lane, Kirk Smeaton.

Report of the Assistant Director – Highways & Infrastructure

1.0 PURPOSE OF REPORT

1.1 The purpose of this report is to advise the Corporate Director for Environment in consultation with the Executive Member for Highways and Transportation of the outcome of the public consultation and statutory advertisement which took place with regard to this proposal and ask for a decision to be made on whether or not the proposal to reduce the speed limit to 20mph on Main Street and Water Lane Kirk Smeaton, be introduced or set aside in light of the objection received.

2.0 BACKGROUND

2.1 Main Street and Water Lane are residential streets in a small rural village, forming part of the main link between Kirk Smeaton and Little Smeaton. Located on Main Street is the local C of E primary school. The speed limit is currently 30mph which is the norm in villages.

2.2 The proposal is in response to requests by the Parish Council and the Head of the local primary school, to reduce the speed limit to 20mph on Main Street and Water Lane, at the location shown on the attached plan Appendix A. Given the high level of pedestrian activity and the high volumes of vulnerable road users at school start and finish times, the reduction in the speed limit will ensure greater safety for pedestrians, in particular children. The Department for Transport's "Setting Local Speed Limits" guidance highlights the importance of traffic authorities' to keep their speed limits under review with changing circumstances; and consider the introduction of more 20mph speed limits and zones in built-up urban areas and village streets.

2.3 As part of the assessment of the proposed 20mph speed limit, one Automatic Traffic Count (ATC) survey was undertaken in order to ascertain whether a 20mph speed limit would be self-enforceable and complied with by drivers. The survey demonstrated that the existing mean speeds are commensurate with the proposed speed limit of 20mph as set out in the Department for Transport document - Circular Road 01/2013 Setting of Local Speed Limits. The survey results can be summarised as follows:

Location	Mean Speed	85%ile	Traffic Volume 7 days/both direction
Main Street	19.5mph	23.5mph	748

3.0 CONSULTATION

3.1 The proposal has been subject to consultation and public advertisement in accordance with the Local Authorities' Traffic Orders (Procedure) (England and Wales) Regulations 1996. The enabling Traffic Regulation Order (TRO) was advertised for public comment in the local press, published on North Yorkshire Council's website and by means of a legal notice placed on the relevant street in accordance with the requirements of the Local Authorities' Traffic Orders (Procedure) (England and Wales) Regulations.

3.2 The TRO was advertised for public comment on 21 August as follows: North Yorkshire Council (20mph Speed Limit) (Main Street, Water Lane, Kirk Smeaton) Order 2025. The last date for receipt of objections was 22 September 2025.

3.3 The process for the consideration of objections to Traffic Regulation Orders was approved by the Executive on 29 April 2014 and County Council on 21 May 2014. The consideration of objections to Traffic Regulation Orders (TROs) is now a matter for the Executive and the role of the Area Committee is changed to a consultative role on 'wide area impact TROs'. The consideration of objections has been delegated by the Executive to the Corporate Director of Environment in consultation with the Executive Member for Highways and Transportation. The decision-making process relates to the provision and regulation of parking places both off and on the highway where an objection is received from any person or body entitled under the relevant statute. A 'wide area impact TRO' is classed as a proposal satisfying all the three criteria set out below.

- The proposal affects more than one street or road and.
- The proposal affects more than one community and.
- The proposal is located within the ward of more than one County Councillor.

3.4 Since the objection received only relates to an individual opposed to the reduction in the speed limit, contained within one street, one community and one Council Ward, this does not have a 'wide area impact TRO' and therefore the Area Committee's views have not been sought.

4.0 LOCAL MEMBER ENGAGEMENT

4.1 Local Member Councillor John McCartney (the ward member representing Kirk Smeaton) was contacted during and after the consultation on his views to the proposals. Cllr McCartney is fully supportive of the proposals.

4.2 In accordance with the protocol for Environment Executive Member reports, the Local Elected Member will be provided with a copy of this report and be invited to the meeting on the 19 December 2025.

5.0 OFFICER COMMENTS

5.1 Officers have considered the objection received and have summarised the response along with officer comments in Appendix B.

5.2 With regard to the objection, it is suggesting that the proposals are a waste of money when the road is already safe as it is impossible to drive at 30mph. To introduce a 20mph speed limit it is a requirement that mean speeds are already low, to reduce the likelihood of requests to the police for enforcement action. National research and practice have shown that where the mean speed is at or below 24mph introducing signing alone is likely to lead to general compliance with the new speed limit. Officers consider that a lower speed limit will lower the number of collisions or injury severity and, reduce the likelihood further of injury collisions occurring.

5.3 There is clear evidence of the effect of reducing traffic speeds on the reduction of collisions and casualties, as collision frequency is less at lower speeds, and where collisions do occur, there is a reduced risk of fatal and serious injury. Research shows that on urban roads with low average traffic speeds any 1 mph reduction in average speed can reduce the collision frequency by around 6%, so driving at 20 mph compared to 30 mph is likely to reduce the frequency of collisions by 60%. This reduction in speeds and collisions particularly benefits children, where collisions can be reduced by up to two-thirds, and pedestrians who have a greater chance of survival in collisions at lower speeds.

5.4 Officers consider that the proposed measures set out in this report will assist in addressing the problems identified and thereby enable the Council to comply with its duty under Section 122(1) of the Road Traffic Regulation Act 1984 to exercise its functions as road traffic authority so as to secure the expeditious, convenient and safe movement of vehicular and other traffic (including pedestrians) and for preventing the likelihood of any such danger arising and preserves/ improves the amenities of the area through which the road runs, as set out in the Statement of Reasons for proposing to make the Order attached to this report in Appendix C. The proposed measures will also enable the Council to carry out its network management duty under Section 16 of the Traffic Management Act 2004 to secure the expeditious movement of traffic on the authority's road network and both the more efficient use and the avoidance, elimination or reduction of road congestion or other disruption to the movement of traffic on their road network.

6.0 FINANCIAL IMPLICATIONS

6.1 The cost of advertising the Traffic Regulation Order and installing the signs road markings, this would comprise of speed limit signing at the entry to the roads proposed to be subject to a 20mph speed limit, with repeater signs and 20mph roundel road markings at the required spacings throughout. The cost is estimated at approximately £2,500 which will be funded from the local highways (Signs Lines and TROs) Capital budget.

7.0 LEGAL

7.1 In the event that the Executive Member and Corporate Director for Environment resolve to follow the recommendations contained in this report, then in accordance with the Local Authorities' Traffic Orders (Procedure) (England and Wales) Regulations 1996, the Council will be required to make the relevant Traffic Regulation Order (with or without modifications) and publish a notice of making the Order in the local press before the Order comes into operation. The Council will also be required to notify the objectors of its decision and the reasons for making that decision within 14 days of the Order being made.

7.2 Where an Order has been made (i.e. sealed), if any person wishes to question the validity of the Order or any of its provisions on the grounds that it or they are not within the powers conferred by the Road Traffic Regulation Act 1984, or that any requirement of the 1984 Act or of any instrument made under the 1984 Act has not been complied with, they may apply to the High Court within six weeks from the date on which the Order is made.

7.3 In recommending the implementation of the proposed TRO, officers consider that it will enable the Council to comply with its duties under Section 122 of the Road Traffic Regulation Act 1984 and Section 16 of the Traffic Management Act 2004. In light of the objection being received it has also been considered whether it would be appropriate to hold a public inquiry. As there is just a specific objection to be considered it would not be proportionate in terms of both time and costs to hold an Inquiry. The objection can be given proper regard in the report and decision making process.

8.0 EQUALITIES IMPLICATIONS

8.1 Consideration has been given to the potential for any equality impacts arising from the recommendation. It is the view of officers that the recommendation does not have an adverse impact on any of the protected characteristics identified in the Equalities Act 2010. A reduction in speed allows all people longer time in which to make decisions and crossroads. A screening form has been included in Appendix D

9.0 CLIMATE CHANGE IMPACT

9.1 Consideration has also been given to the potential for any adverse Climate Change impacts arising from the recommendation. The proposal is to reduce the existing speed limit by the factor, 20mph. The effects of speed limits on vehicle emissions depend upon driver behaviour. However, emissions rural areas can generally be reduced if vehicles are driven at a lower speed, and drivers observe speed limits. The speed limit changes are unlikely to increase fluctuations in driver speeds or in pollution to any significant degree. It is therefore considered that there are no significant environmental implications arising from this report. A copy of the Climate Change Impact Assessment decision form is attached as Appendix E.

10.0 REASONS FOR RECOMMENDATIONS

10.1 Main Street and Water Lane, at the location shown on the attached plan Appendix A, has high level of pedestrian activity and the high volumes of vulnerable road users at school start and finish times, the reduction in the speed limit will ensure greater safety for pedestrians, in particular children. The Department for Transport's "Setting Local Speed Limits" guidance highlights the importance of traffic authorities' to keep their speed limits under review with changing circumstances; and consider the introduction of more 20mph speed limits and zones in built-up urban areas and village streets. This allows the Council to comply with its duty under Section 122(1) of the Road Traffic Regulation Act 1984 to exercise their functions as road traffic authority so as to secure the expeditious, convenient and safe movement of vehicular and other traffic (including pedestrians) and for preventing the likelihood of any such danger arising and preserves/ improves the amenities of the area through which the road runs, as set out in the Statement of Reasons, for proposing to make the Order.

11.0 RECOMMENDATION

11.1 It is recommended that the Corporate: -

i. The results of the consultation exercise are noted.
ii. The Corporate Director, Environment~~,~~ in consultation with the Environment Executive Member for Highways and Transportation, approves the introduction of a 20mph speed limit as advertised and as shown in the Plan contained in Appendix A.
iii. That the Assistant Chief Executive (Legal and Democratic Services) be authorised to seal the relevant Traffic Regulation Order by the Corporate Director, Environment and Environment Executive Member for access considering the objections received and that the objectors are notified within 14 days of the order being made

APPENDICES:
Appendix A – Location plan.
Appendix B – Summary of the objections received, together with officer comment.
Appendix C – Statement of reasons.
Appendix D – Initial equality impact assessment screening form.
Appendix E - Climate change impact assessment.

Background Documents: Letter of objection received are held in the scheme file held by the Selby Area 7 Highways Office.

Barrie Mason
Assistant Director – Highways & Infrastructure
County Hall
Northallerton
19 December 2025

Author of Report: Gary Lumb
Presenter of Report: Gary Lumb

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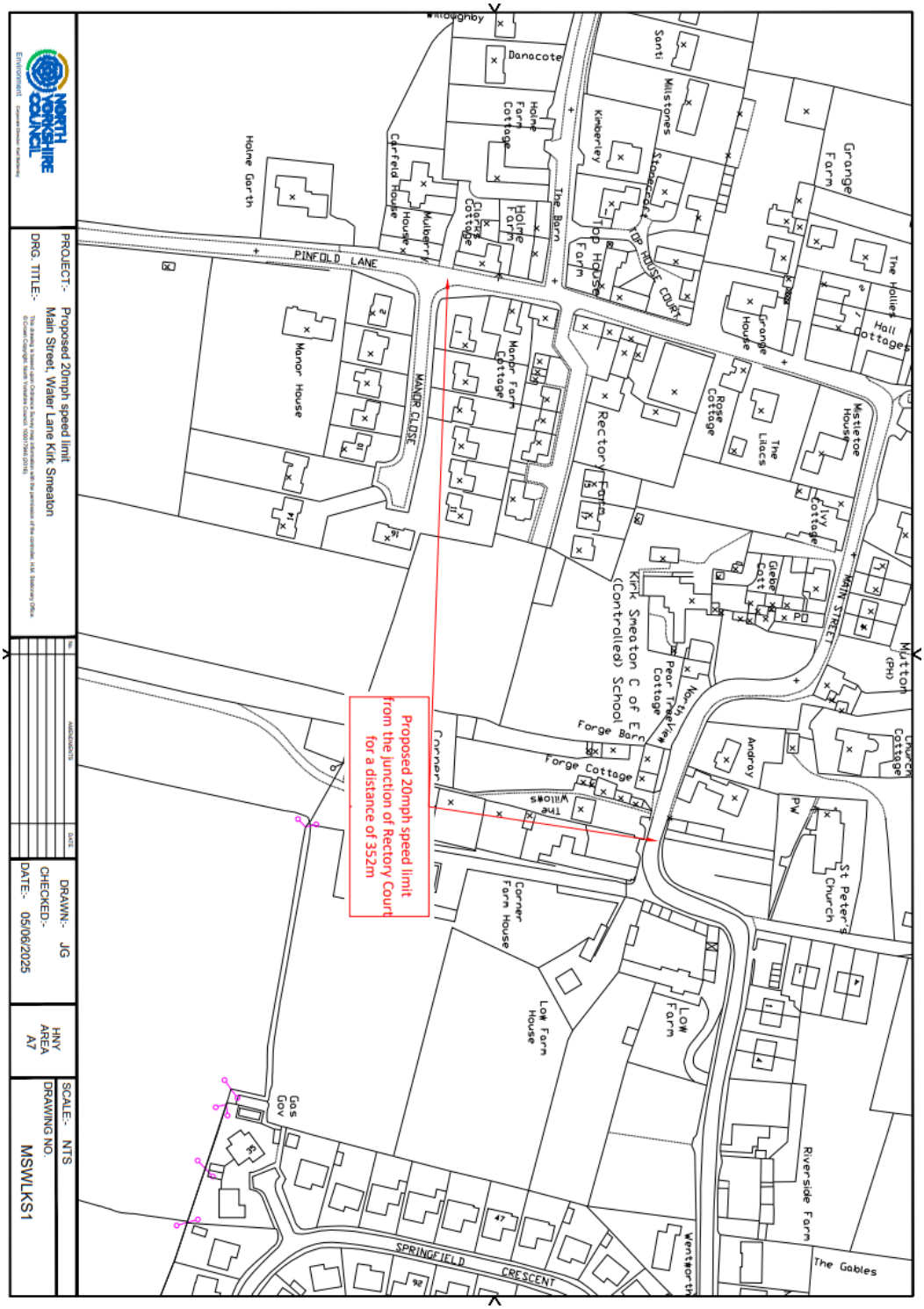
NORTH YORKSHIRE COUNCIL
Environment
PROJECT:- Proposed 20mph speed limit Main Street, Water Lane Kirk Smeaton
DRG. TITLE:-
DRAWN:- JG
CHECKED:-
DATE:- 05/06/2025
HNY AREA A7
SCALE:- NTS
DRAWING NO. MSWLKS1
Proposed 20mph speed limit from the junction of Rectory Court for a distance of 352m
PINFOLD LANE
MAIN STREET
MANOR CLOSE
TOP HOUSE COURT
SPRINGFIELD CRESCENT
Kirk Smeaton C of E (Controlled) School
Rectory Farm
Manor House
Manor Farm Cottage
Holme Garth
Holme Farm Cottage
Holme Farm
Top House Farm
The Barn
Danacote
Grange Farm
Grange House
The Hollies
Hall Cottage
Rose Cottage
The Lilacs
Mistletoe House
Ivy Cottage
Glebe Cott
PO
Mutton (PH)
Pear Tree View
Forge Barn
Forge Cottage
The Willows
Androy
Corner Farm House
Low Farm
Low Farm House
St Peter's Church
Riverside Farm
The Gables
Gas Gov

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Summary of Comments Resident of Kirk Smeaton	Officer Comments
I think it is a waste of money when the road is already safe due to all the bends and parked vehicles, its virtually impossible to drive at even 30mph. Also, the streets signs will make the village look ugly.	To introduce a 20mph speed limit it is a requirement that mean speeds are already low, to reduce the likelihood of requests to the police for enforcement action. National research and practice has shown that where the mean speed is at or below 24mph introducing signing alone is likely to lead to general compliance with the new speed limit.
I think this road will not benefit from this restriction, on the second day back school in the main the speeding vehicle are school traffic and how will it be enforced and with the increased local traffic, parking on footpaths and A1 traffic it's difficult to speed faster than 30.	The Department for Transport's "Setting Local Speed Limits" guidance highlights the importance of traffic authorities' to keep their speed limits under review with changing circumstances; and consider the introduction of more 20mph speed limits and zones in built-up urban areas and village streets. The recorded main average speed is 19.5mph this will reduce the likelihood of requests to the police for enforcement action.

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STATEMENT OF THE COUNCIL'S REASONS FOR PROPOSING TO MAKE THE ORDER:	The County Council as the traffic authority for North Yorkshire considers that it is expedient to make the traffic regulation order:- a) for avoiding danger to persons or other traffic using the road or any other road or for preventing the likelihood of any such danger arising b) for preventing damage to the road or to any building on or near the road c) for facilitating the passage on the road or any other road of any class of traffic (including pedestrians) d) for preventing the use of the road by vehicular traffic of a kind which, or its use by vehicular traffic in a manner which, is unsuitable having regard to the existing character of the road or adjoining property e) for preserving or improving the amenities of the area through which the road runs
	Proposal location: Main Street and Water Lane, Kirk Smeaton Introduction of 20mph Speed Limit for road safety reasons. Given the high level of pedestrian activity and the high volumes of vulnerable road users at school start and finish times, the reduction in the speed limit will ensure greater safety for pedestrians, in particular children.

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Initial equality impact assessment screening form
(As of October 2015, this form replaces 'Record of decision not to carry out an EIA')

This form records and equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.

Directorate	Environment
Service area	Highways & Transportation
Proposal being screened	Proposed 20mph Speed Limit.
Officer(s) carrying out screening	Gary Lumb
What are you proposing to do?	Introduce a 20mph Speed Limit on Main Street and Water Lane, Kirk Smeaton.
Why are you proposing this? What are the desired outcomes?	Main Street and Water Lane at t the location shown on the attached plan Appendix A, Given the high level of pedestrian activity and the high volumes of vulnerable road users at school start and finish times, the reduction in the speed limit will ensure greater safety for pedestrians, in particular children. The Department for Transport's "Setting Local Speed Limits" guidance highlights the importance of traffic authorities' to keep their speed limits under review with changing circumstances; and consider the introduction of more 20mph speed limits and zones in built-up urban areas and village streets. This allows the County Council's to comply with its duties under Section 122(1) of the Road Traffic Regulation Act 1984 and Section 16 of the Traffic Management Act 2004
Does the proposal involve a significant commitment or removal of resources? Please give details.	NO

Is there likely to be an adverse impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYC's additional agreed characteristics?
As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be a significant adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your Equality rep for advice if you are in any doubt.

Protected characteristic	**Yes**	**No**	**Don't know/No info available**
Age		√	
Disability		√	

Sex (Gender)		√		
Race		√		
Sexual orientation		√		
Gender reassignment		√		
Religion or belief		√		
Pregnancy or maternity		√		
Marriage or civil partnership		√		
NYC additional characteristic				
People in rural areas		√		
People on a low income		√		
Carer (unpaid family or friend)		√		
Are from the armed forces community		√		
Does the proposal relate to an area where there are known inequalities/probable impacts (e.g. disabled people's access to public transport)? Please give details.	NO			
Will the proposal have a significant effect on how other organisations operate? (e.g. partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	NO			
Decision (Please tick one option)	EIA not relevant or proportionate:	√	Continue to full EIA:	
Reason for decision	It is considered that all classes of road user will benefit from the proposed 20mph Speed Limit Order. Officers use a number of factors when determining appropriate speed limits; these are based on the Department for Transport's guidance "Setting Local Speed Limits" and include factors such as existing traffic speeds, history of collisions, road purpose/function, population size, expected vulnerable road users and environmental affect. These factors were all considered, and it was concluded that a speed limit of 20mph was appropriate for this part of Main Street and Water Lane, achieving a safe environment for all types of road users.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	04/12/2025			

Climate change impact assessment

The purpose of this assessment is to help us understand the likely impacts of our decisions on the environment of North Yorkshire and on our aspiration to achieve net carbon neutrality by 2030, or as close to that date as possible. The intention is to mitigate negative effects and identify projects which will have positive effects.

This document should be completed in consultation with the supporting guidance. The final document will be published as part of the decision making process and should be written in Plain English.

If you have any additional queries which are not covered by the guidance, please email climatechange@northyorks.gov.uk

Please note: You may not need to undertake this assessment if your proposal will be subject to any of the following:
Planning Permission
Environmental Impact Assessment
Strategic Environmental Assessment

However, you will still need to summarise your findings in in the summary section of the form below.

Please contact climatechange@northyorks.gov.uk for advice.

Title of proposal	**Proposed waiting restrictions**
Brief description of proposal	**Introduce a 20mph Speed Limit on Main Street and Water Lane, Kirk Smeaton.**
Directorate	**Environment**
Service area	**Highways and Transportation**
Lead officer	**Gary Lumb**
Names and roles of other people involved in carrying out the impact assessment	**None**
Date impact assessment started	**17/11/2025**

Options appraisal
Were any other options considered in trying to achieve the aim of this project? If so, please give brief details and explain why alternative options were not progressed.

None. It is consider that the proposed restriction will assist in addressing the road safety problems which have been observed to occur on site and thereby enable the Council to comply with its duty under Section 122(1) of the Road Traffic Regulation Act 1984 to exercise their functions as road traffic authority so as to secure the expeditious, convenient and safe movement of vehicular and other traffic (including pedestrians) and for preventing the likelihood of any such danger arising and preserves/ improves the amenities of the area through which the road runs.

What impact will this proposal have on council budgets? Will it be cost neutral, have increased cost or reduce costs?

Please explain briefly why this will be the result, detailing estimated savings or costs where this is possible.

The cost of advertising the Traffic Regulation Order and installing road signs and markings will be funded from the local highways (Signs Lines and TROs) Capital budget.

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**		**Positive impact** (Place a X in the box below where relevant)	**No impact** (Place a X in the box below where relevant)	**Negative impact** (Place a X in the box below where relevant)	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Minimise **greenhouse gas emissions** e.g. reducing emissions from travel, increasing energy efficiencies etc.	Emissions from travel		**x**				
	Emissions from construction		**x**				
	Emissions from running of buildings		**x**				
	Other		**x**				
Minimise **waste:** Reduce, reuse, recycle and compost e.g. reducing use of single use plastic			**x**				
Reduce **water** consumption			**x**				
Minimise **pollution** (including air, land, water, light and noise)			**x**				

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**	**Positive impact** (Place a X in the box below where	**No impact** (Place a X in the box below where	**Negative impact** (Place a X in the box below where	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Ensure **resilience** to the effects of climate change e.g. reducing flood risk, mitigating effects of drier, hotter summers		**x**				
Enhance **conservation** and wildlife		**x**				
Safeguard the distinctive characteristics, features and special qualities of **North Yorkshire's landscape**		**x**				
Other (please state below)		**x**				

Are there any recognised good practice environmental standards in relation to this proposal? If so, please detail how this proposal meets those standards.
N/A

Summary Summarise the findings of your impact assessment, including impacts, the recommendation in relation to addressing impacts, including any legal advice, and next steps. This summary should be used as part of the report to the decision maker. The proposed waiting restrictions order will require the installation of traffic signs and new road markings but will not otherwise have an impact on the Environment. However, steps will be taken to ensure that construction emissions are reduced as far as possible.

Sign off section

This climate change impact assessment was completed by:

Name	**Gary Lumb**
Job title	**Improvement Manager**
Service area	**Highways and Transportation**
Directorate	**Environment**
Signature	
Completion date	**01/12/2025**

Authorised by relevant Assistant Director (signature): Barrie Mason

Date: 04/12/2025

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North Yorkshire Council

Environment Executive Members

19 December 2025

Harrogate Transport Improvements Programme 2 Outcomes

Report of the Assistant Director, Highways and Infrastructure

1.0 PURPOSE OF REPORT

1.1 To provide details of the outputs from the Harrogate Transport Improvement Package (HTIP) stage 2 study and to discuss options on next steps.

2.0 SUMMARY

2.1 Harrogate Transport Improvement Package (HTIP2) is the second stage of a study looking into ways to reduce congestion and encourage use of sustainable travel modes on the A61 Leeds Road corridor in Harrogate. This phase of study is the most recent in a number of evolving studies of the Harrogate area, which have been developed in accordance with Department for Transport major scheme business case guidance.

2.2 This phase of study has been protracted and encountered delays due to the requirement to incorporate the modelling and forecasting from the West of Harrogate Transport Assessment (WoHTA) which has taken some time to be developed. The study takes the West of Harrogate (WoH) modelling into account but has a slightly different set of objectives which sit beyond the remit of the WoHTA, which essentially amounts to mitigation of development related traffic. This means that HTIP is cognisant of WoH but isn't constrained by its outputs.

2.3 A variety of interventions, across a wide range of modes and disciplines have been considered, tested and packaged together as part of this study. They have been selected as a result of previous public engagement, best practice from other areas, and also their potential to deliver comprehensive and cumulative benefit to the study area. The reason for undertaking this corridor study, rather than focussing on smaller scale, lower cost, discrete interventions was that experience and best practice have shown that to deliver quantifiable benefits, and transformational change, a multimodal package of linked measures is needed, which can offer people travelling a genuine choice of how to travel other than by car. This means providing a range of travel options, which are safe, convenient and affordable, and which are competitive in terms of journey times and cost to the user.

2.4 The various measures have been put together into three packages of varying degrees of impact and costs. The 'do minimum', 'do something' and 'do maximum' packages vary significantly in costs and scale, but also consequently in their impacts and benefits. Whilst this is not a linear function, there is a correlation between the extent of the investment and the likely resultant benefits. The details of these packages, their possible impacts and outcomes, and a recommendation on next steps are set out in more detail within this report.

3.0 BACKGROUND

3.1 HTIP2 is the latest iteration of a long-term transport study, which will form the basis of a local major transport scheme. The study started life in 2017 as the Harrogate Relief Road Review and was set in motion at the request of elected members on the then Harrogate and Knaresborough Area Committee, who wanted to understand whether various existing relief road alignments, which were protected through planning, were desirable, or had any likelihood of being delivered, or whether they could be deleted from council searches.

3.2 After a significant baselining and stage one data-gathering study, the Harrogate Congestion Study (HCS) commenced, and in line with existing standard industry practice and Department for Transport (DfT) requirements, widened from a study purely considering roads, to a study considering a much wider range of transport options and modes, known as a multi modal study.

3.3 Public engagement took place in the summer of 2019. This included an online survey, and a number of face-to-face events, plus coverage in local and regional press. A leaflet setting out detail of how and when people could participate was distributed to 56,000 properties within the study area to encourage participation.

3.4 Over 15,500 responses were received to the survey, through the online survey, on printed paper versions, and via email. This included 1,010 completed paper versions of the form. In addition, around 1,000 people attended the 9 public events that were held in various locations in Harrogate and Knaresborough.

3.5 The response to the engagement was conclusive that those responding did not want a relief road, or bypass, to be built in their area; rather they wanted new transport investment to be focused on sustainable transport options. Whilst support for new road building was very low, conversely support for investment in active travel, bus priority, smarter choices, and park and ride was high.

3.6 Notably, however, there was support for further development of a bypass scheme in Killinghall. As a result, further development work was commissioned on that to understand the likely value for money of a standalone Killinghall Bypass, and to assess the deliverability of such a scheme. That work has now concluded, and the scheme has been added to the major scheme pipeline long list, which is now the responsibility of the Mayoral Combined Authority.

3.7 Following the HCS engagement, we commissioned WSP, our then framework consultants, to undertake further DfT compliant option development work. It was agreed that this would look across the Harrogate area on a multimodal basis, at where improvements could be made, and what form they might take.

3.8 HTIP1 reported on those findings in the winter of 2020. The study area included Harrogate and Knaresborough. The study considered best practice nationally and internationally, and recommended areas for further development. It included the A61, A661 and the A59 and looked at where improvements could be made to bus, cycle and pedestrian infrastructure, and junction enhancements, and also whether there might be opportunity to construct and deliver park and ride sites and services.

3.9 Further to this and taking into account that the costs of delivering investment on this scale would outstrip the council's own budgets, it was recommended that the study filtered down further to focus on one key arterial route, or corridor, at a time. Therefore, it was determined that the next phase of study would concentrate on the A61 Leeds Road. This particular route was chosen as it was considered to be the area with the greatest potential for intervention, due to a variety of characteristics and features, and constraints on some other

key routes in the network. Since then, work has continued on transport modelling, targeted engagement (using a market research specialist), and development of options, including some outline design work, for walking, cycling, bus priority and junction redesign, as part of this phase of study, known as HTIP2.

3.10 In addition, we have broadened out the study of park and ride, and despite the main study focus on the A61, the park and ride element looks across the Harrogate urban area. This is in recognition that for park and ride to function effectively and be attractive it needs to offer genuine travel choice, but also be cheaper than other options such as driving into the town centre to park. From the perspective of equity, if town centre parking is to be disincentivised through raising parking charges, then there should be alternative travel options across the town and its radial routes, and not just from one area.

3.11 This phase of the study has been protracted and significantly lengthened by a number of factors. One of these is that the study was launched during the Covid pandemic, which resulted in some delays due to issues around staffing and also the ability to undertake site visits and surveys during the various phases of 'lockdown' due to consequential changed travel habits.

3.12 In addition to this, the biggest cause of delay to the project has been the interface with the WoH development management project. This project, which is complex and includes a number of private and public sector partners, considers how best to mitigate the impact of approximately 4,000 new dwellings being built in the west of Harrogate area and the consequent changes to demand on the existing highway network. Whilst HTIP2 doesn't explicitly seek to mitigate this development impact, it does take the forecast traffic impacts of that development into account and ensures that any recommendations made as part of HTIP2 are not contradicting any of the approaches being recommended by colleagues in Development Management. It is for this reason that the project has been delayed whilst various iterations of development mitigation were considered, in some cases rejected, and then agreed in the form of a development wide transport assessment. The figures from that transport assessment forecast have been used as part of the HTIP2 modelling, and proposals from HTIP2 have similarly been tested to ensure that they do not contradict, or undermine the mitigations set out in the West of Harrogate transport assessment.

3.13 As is typical in project development, the HTIP2 study has resulted in a range of potential options; a do minimum, a do something, and a do maximum option, each of which are based on a combination of various elements to create a package of measures. Prior to selection, these were sifted, and then ranked, to enable the best-performing measures to be put together.

3.14 The range of potential package costs is wide, and both the do something and do maximum options would fall outside of the council's own budgets. Schemes costing more than £5million are generally considered to be 'large local major schemes' and if a local transport authority cannot fund a scheme of that scale, they would apply to government to be included in the large local major programme. As a result of devolution, and the formation of the York and North Yorkshire Combined Authority (YNYCA), the funding, powers and responsibilities of the local transport authority have now been passed to the York and North Yorkshire MCA. The MCA also have greater access and flexibility in funding that would traditionally have been held by central government, and as a result can make decisions on funding larger, higher value schemes. On that basis, the likelihood is that once a preferred option for HTIP2 has been selected, this would be passed to the MCA, for further development and delivery and either delivered through their budgets or submitted to the DfT for consideration.

3.15 The options considered include a small number of possible park and ride sites, based on use of an adaptive service, (where an existing bus service calls in at/serves a new park and ride site), bus priority and signal enhancements to give opportunities for buses to bypass queueing traffic, junction redesign to improve general traffic flow and also prioritise sustainable modes, enhanced crossing facilities to give pedestrians and cyclists better facilities and make walking and cycling more attractive and feasible as an option, and cycle lanes predominantly using quieter routes. The aim of the programme is to develop a comprehensive package of measures along the route, because evidence has shown that standalone measures are often less effective than coordinated and complementary packages of investment in infrastructure, where cumulative benefits can be delivered.

3.16 Once a preferred option has been selected, a programme of next steps will be drawn up. In addition to the development and delivery of physical infrastructure through capital investment, a supporting programme of promotion, behaviour change, and 'softer' measures would be beneficial to encourage people to change their travel habits. This might include promotion and communication initiatives, but also travel planning and travel advocacy initiatives or the provision of tailored travel information could help to support people to change their travel choices. Further, initiatives to encourage and make the use of public transport easier may form part of any future programme, including cross ticketing initiatives, improvements to information products and also improvements to interchange facilities for multi modal journeys.

4.0 POLICY CONTEXT

4.1 HTIP2 is a longstanding transport planning project, which sits within an evolving transport and land use planning policy context. In 2023, North Yorkshire County Council merged with the 7 district councils in the county to become a unitary authority, North Yorkshire Council, in a process known as Local Government Reorganisation (LGR). As a consequence of this, work has begun on developing a unified single local plan to cover the entire geographic area of North Yorkshire. Whilst the local plan is primarily concerned with planning policy, transport is a key element of how places function, and transport strategy, particularly around how we ensure access to services in local areas will form part of the new local plan.

4.2 In 2024 a Mayor for North Yorkshire and York was elected, to lead YNYCA. YNYCA has transport as one of its key responsibilities and has become the local transport authority for York and North Yorkshire and will take the lead on developing a new Local Transport Plan (LTP)for York and North Yorkshire. The LTP will set out the strategy and policy approach for transport in the area. The LTP is a statutory, strategic transport policy framework, which will set out how we will work towards national and local objectives for transport, and how we will ensure these are consistent with policy aspirations in other thematic areas.

4.3 YNYCA have already published a strategic transport framework (STF) setting out the mayor's high level vision for transport and how that links in to other emerging strategies. The STF will sit above the LTP, but it is anticipated that the LTP will provide more detail on how the aims in the STF will be applied in different parts of York and North Yorkshire and will also include an implementation plan setting out investment priorities and a programme of schemes. We have been awaiting new guidance on LTPs from the DfT since 2022, and were hopeful that it may be issued in 2025 as this would ensure scheme and policy development in line with national approaches. However, YNYCA and partners are starting development of the new LTP without the guidance as DfT have now indicated that it will not be published imminently.

4.4 Linked to this, more generally, we are awaiting with interest further details from the DfT on bus re-regulation, and also guidance from the DfT on how they are going to support authorities in delivering active travel schemes. These schemes can be difficult to deliver, and there is often public resistance to any suggestion of restricting vehicle movements, which can make delivery of active travel schemes protracted and sometimes, ultimately, unsuccessful.

4.5 A Bus Service Improvement Plan (BSIP) for North Yorkshire has been published and refreshed. The BSIP sets out the council's vision for buses and how that will be delivered in the coming years. YNYCA will take on preparation of a joint BSIP for York and North Yorkshire and that will be published in due course.

4.6 HTIP has been developed on the basis of extant policy, strategy and guidance. Should a further stage pf development be taken forward on this project, any changes to policy will be reflected at that stage.

5.0 HTIP2

5.1 REPORT FORMAT AND CHAPTERS

5.2 As set out in section 3 above, the HTIP2 report covers a range of modes and possible interventions for each of those modes, of varying degrees of size and cost.

5.3 The report includes a site assessment, which considers a variety of external factors that may provide a constraint or opportunity for the project element being discussed. Furthermore, the report takes account of other policy issues, socio economic and demographic data and also transport data which might be pertinent to the design and delivery of the scheme.

5.4 Stakeholder engagement, which was undertaken by a specialist market research company is discussed in chapter 3.

5.5 A summary of the appraisal of sites for park and ride is set out in chapter 4.

5.6 Chapter 5 sets out the details of a number of options that have been developed though the study and how they have been refined and sifted, including approaches to scheme modelling, costing and design. This chapter also sets out how the options have evolved from HTIP1 to HTIP2.

5.7 Details of junction modelling are set out in chapter 6. These include the approaches taken to modelling, details of the software used to model the various junctions and features of the network, and the results from that modelling.

5.8 Chapters 7, 8 and 9 include details of cost estimates for the various measures suggested, based on industry standard approaches to cost estimation, an assessment on a qualitative basis of the impact on carbon of the various elements of the programme that have been suggested, and a sifting process in the form of an impact assessment, leading to a number of suggestions of package options.

5.9 From this, a series of conclusions and recommendations is made.

6.0 SUMMARY OF OPTIONS AND RECOMMENDATIONS

6.1 As set out above, the report details a wide range of potential schemes and interventions and then assesses them all, based on their anticipated benefits and impacts, and also the likely costs involved in delivering those elements. This assessment provides a score for each element, which is then used to determine where, if at all, that measure should be included in a package. This scoring also results in some of the options being discounted, or only progressed in certain prescribed scenarios.

6.2 Because funding has not as yet been secured for the delivery of this programme, the study was developed on the basis that the options for delivery could be 'modular' with elements added in or taken out as funding might permit.

6.3 This study gives a very high level, qualitative view of value for money, but any future development for this project would require a more detailed economic appraisal to meet the funder's requirements (either DfT or YNYCA). This is a standard major project development approach. However, once a preferred package is selected, calculating value for money is relatively straightforward, albeit that some of the non-monetised benefits (such as the impact of schemes on townscape, biodiversity, security and accessibility) are more difficult to calculate.

6.4 Summary of the packages:

Intervention and cost estimate (based on 2024 prices)	**Package elements**	**Deliverability and acceptability**	**Who benefits?**
Do minimum **Cost £1.8m**	Implement MOVA responsive traffic signal control and pedestrian crossing upgrades at Pannal Bank/ Follifoot Road junction.	Moderate to good deliverability. Moderate to good public acceptability	Pedestrians, buses and general traffic.
	Turning movements restricted at the Hookstone Road / Leadhall Lane junction. Provide new controlled pedestrian crossing on Leadhall Lane.	Moderate to good deliverability. Moderate to low public acceptability	Pedestrians, buses and general traffic.
	Provide signalised crossings set back from the Prince of Wales Roundabout	Moderate to good deliverability Moderate to good public acceptability	Pedestrians.
Do something. **Cost £8.9m**	MOVA control and pedestrian crossing upgrades at the Pannal Bank/ Follifoot Road junction. Right turn movements restricted.	Moderate to good deliverability Moderate to good public acceptability	Pedestrians, buses and general traffic.
	Turning movements restricted at the Hookstone Road / Leadhall Lane junction. Provide new controlled pedestrian crossing on Leadhall Lane.	Moderate to good deliverability	Pedestrians, bus users and general traffic.

Intervention and cost estimate (based on 2024 prices)	Package elements	Deliverability and acceptability	Who benefits?
		Moderate to low public acceptability	
	Provide four new zebra crossings and two signalised crossings at Park Drive Roundabout	Moderate to good deliverability Moderate to good public acceptability	Pedestrians.
	Provide signalised crossings set back from the Prince of Wales Roundabout	Moderate to good deliverability Moderate to good public acceptability	Pedestrians.
	3m N/B bus and cycle lanes between Thirkhill Drive and Pannal Bank; and between Fulwith Mill Lane and Leadhall Lane.	Moderate deliverability Poor public acceptability	Cyclists
	Restrict movements at the Kings Road/Parliament Street junction and widen footways.	Moderate deliverability Moderate acceptability	Pedestrians and buses and general traffic.
	Cycle route connecting the town centre with Pannal via new links, quiet streets and public rights of way	Moderate deliverability Moderate acceptability	Cyclists.
Do Maximum **Cost £38.6m**	MOVA control and pedestrian crossing upgrades at the Pannal Bank/ Follifoot Road junction. Right turn movements restricted.	Moderate to good deliverability Moderate to good public acceptability	All users
	Turning movements restricted at the Hookstone Road / Leadhall Lane junction. Provide new controlled pedestrian crossing on Leadhall Lane.	Moderate to good deliverability Moderate to low public acceptability	Pedestrians, and vehicles using the A61
	Convert the Park Drive Roundabout into signalised crossroads closing St Georges Road and South Drive.	Moderate to poor deliverability Moderate public acceptability	Pedestrians and vehicles using the A61

Intervention and cost estimate (based on 2024 prices)	Package elements	Deliverability and acceptability	Who benefits?
	Provide signalised crossings set back from the Prince of Wales Roundabout	Moderate to good deliverability Moderate to good public acceptability	Pedestrians
	4.5m N/B bus and cycle lanes between Thirkhill Drive and Pannal Bank; and between Fulwith Mill Lane and Leadhall Lane.	Moderate to poor deliverability Poor public acceptability	Bus users and cyclists
	Town centre improvements including N/B bus and cycle lane with loss of parking on west side of A61. Footways widened on both sides of the road.	Moderate deliverability Moderate to poor acceptability	Bus users, cyclists, pedestrians.
	Restrict movements at the Kings Road/Parliament Street junction and widen footways.	Moderate deliverability Moderate acceptability	Pedestrians and buses and general traffic.
	2 x cycle routes connecting the town centre with Pannal via new routes, quiet streets and public rights of way.	Moderate deliverability Moderate acceptability	Cyclists.
	Provide a Park & Ride site on site J4: East of Leeds Road, Pannal (assumed revenue neutral).	Moderate to poor deliverability Moderate acceptability	All users of the A61 traveling into the town centre.

6.5 As the table above shows, there are core elements which feature in each level of package. Beyond those, schemes are built up to a do something/more ambitious and do maximum/very ambitious packages of measures. Greater detail of those measures, and how they have been developed are set out in the full report.

7.0 CONSULTATION UNDERTAKEN AND RESPONSES

7.1 As part of the study, market research was undertaken by a specialist consultancy to understand the propensity for people living within Harrogate and further afield to change their travel habits and use sustainable modes of travel. It also asked questions relating to current mode use and what they considered to be barriers to change.

7.2 The market research was based on understanding the habits and aspirations of a number of defined demographic groups. Having this level of detail will help in the future to target both services and promotional activities accordingly at the appropriate demographic group.

7.3 The research found that there was broadly a high level of support for park and ride, but use of such a service would be predicated on the operation of a high frequency, fast and comparatively cheap bus service.

7.4 Improvements to cycling facilities, in particular to make cycling safer and more attractive, were also supported by more than half of the survey respondents. Two thirds of those responding said that they would support reduced town centre parking and increased parking charges as an incentive to use sustainable and active modes.

7.5 In terms of both bus, park and ride, and active travel, a key message from the survey was that options need to be convenient, integrated and easy to use.

8.0 PARK AND RIDE

8.1 Park and ride is a component of the HTIP study and has been assessed alongside the other elements that have been considered, including bus priority, pedestrian and cycle facilities, and junction improvements. For park and ride to be successful and attractive, it is recognised that improvements to facilities for buses must be made, to allow priority, so that buses have a journey time advantage over private vehicles. This is an accepted approach in planning park and ride services and is a core element of the most successful park and rides. It is for this reason that park and ride has been incorporated in this study, rather than taken forward as a standalone project, and it is important if it is progressed, that the complementary measures set out in this study are also delivered.

8.2 The potential for park and ride in Harrogate has been of public interest for many years and has been studied several times previously. The information gathered as part of these previous studies formed the background to the HTIP2 park and ride assessment.

8.3 In assessing the opportunities for park and ride in Harrogate, in this phase of study the sites considered were widened out to ensure equitable access to park and ride services across the town. Further, some sites that hadn't been considered as part of phase 1 of the study were included in this study to ensure completeness. These sites came from suggestions from the public, elected Members and local businesses such as developers.

8.4 In total 107 possible sites were included at the outset, and then sifted, with consideration given to the following criteria:

- The geographical location of the site and its proximity to Harrogate town centre.
- The site's proximity to nearby access corridors (i.e., A and B roads for ease of access).
- Proximity to alternative travel modes to the town centre (i.e., in some cases rail stations).
- Proximity to existing bus routes (in order to assess the likelihood of using an adapted existing bus service rather than a dedicated park and ride only bus).
- Proximity to planned housing or development sites (dependent on status in local plan/planning process).
- Deliverability of the site – various criteria including land ownership, physical constraints such as power infrastructure, water courses, landscape designations and planning status.

8.5 This resulted in 11 sites being shortlisted and taken forward for demand forecasting. This forecasting included a core scenario and then sensitivity tests of a number of relevant variables (such as increased parking charges, high bus fares, low bus fares etc).

8.6 Financial viability was assessed by comparing forecasted revenue (based on the demand forecast and suggested number of parking spaces required) with predicted operational costs. In order to assess operating costs, three scenarios were used, including a dedicated (specially contracted, park and ride-only bus) service, and adapted service (existing bus service serves the park and ride site), and a hybrid service (combination of a dedicated and adapted service).

8.7 Revenue forecasting was calculated for one, and 5 years post opening. This showed that in all cases and for all sites, a dedicated service would not be self-sustaining and would therefore not be viable without public subsidy.

8.8 The financial viability of hybrid and adapted services was as follows:

- Southern corridor (A61) - viable using adapted/existing service
- Eastern corridor and showground (A661) – viable using hybrid service (supported to increase frequency from 30 to 15 minute intervals)
- Northern corridor (A61) – viable using an adapted/existing service
- Northwest (A59/B6161) – no suitable bus service – would require full subsidy.

8.9 At a basic level, the Eastern and Showground sites were not considered financially viable under a hybrid service as the additional buses required to ensure the site could run at a 15-minute frequency means the site would operate at a bigger loss than other sites. However, there is potential for additional income during events such as the Great Yorkshire Show which could make the site viable, therefore for that reason these have remained in scope.

8.10 The sites that were considered viable were progressed to an initial design stage taking into account factors such as their topography, existing constraints on site (known utilities, power lines, watercourses etc), current and future access arrangements. From this process, 5 sites remained in scope for design, in the northern, eastern, southern and showground corridors. These are:

- Southern - Buttersyke Bar
- Southern - East of Leeds Rd, Pannal
- Northern - Ripley (northern site)
- Eastern - Close to the Kestrel PH
- Showground

8.11 The sites that have been assessed as having the greatest feasibility for delivery are set out above. However, it must be reiterated that this is based on an operating model minimising or completely removing the need for public subsidy. Should it be considered acceptable to use public funds to support these services, this would potentially bring a number of the previously discounted sites back into consideration.

8.12 As noted above, for park and ride to be successful, it is suggested that more than one site be brought forward as part of a package. The full report sets out the details of this, but in summary, the sites that perform best could be prioritised, to offer travellers a genuine mode choice. Park and ride is included only in the do maximum option, due to the high scheme costs of delivering each site.

9.0 SCHEME DEVELOPMENT AND OPTIONEERING

9.1 Optioneering for the remaining elements of this study built on the work undertaken at stage 1 and follows DfT methodologies set out in their Transport Appraisal Guidance (TAG) for option development.

9.2 Initial options were sifted using a multi criteria assessment tool (MCAT) to produce a shortlist of better performing options.

9.3 At HTIP stage one, both the A59 and A61 were studied, but the better performance of sites on the A61 in the park and ride assessment, and issues around competing demands for cycle and bus infrastructure on the A59 without alternative options at the time, resulted in the A61 being prioritised for consideration in HTIP2. Relevant also in this decision was that the costs of developing and delivering a full corridor intervention would be high and therefore focusing on one corridor at a time, on a prioritised basis, would be a better approach.

9.4 The objectives and critical success factors for stage one of HTIP were revisited to check their fitness for purpose in the context of the A61 corridor. These were then used to test the long list of interventions to determine the focus for the study.

9.5 A range of interventions that could be scaled up or down was considered in the study, resulting in a number of packages, based on a do minimum/low cost, do something/medium cost, and a do maximum/high cost approach.

9.6 **Junctions**
Initial concept designs of the interventions were developed and were tested using a number of modelling programmes. Modelling was initially undertaken in 2023, but then re-run in 2024 when the details of the West of Harrogate transport assessment had been made available to the HTIP project team.

9.7 Junction models were created for the following junctions, based on surveys undertaken in November 2022:

- A61 / Kings Road / Crescent Road junction
- Prince of Wales roundabout
- A61 / Park Drive roundabout
- A61 / Hookstone Road junction
- A61 / Pannal Bank junction

9.8 The modelling was used to test the interventions using a number of different metrics, including queue length, delay time, degree of saturation (how full a lane or junction is), and practical reserve capacity (how much spare capacity the junction has). By using a number of metrics, a greater degree of confidence in the effectiveness of the option is achievable.

9.9 Designs and interventions are based on: reducing the number of movements at a junction (whilst preserving throughput on the main A61 corridor), introducing bus priority, and cycle facilities, and enhanced pedestrian facilities such as widened footways and increased opportunities for pedestrian crossings.

9.10 In addition to the junction modelling, bus priority measures, which were considered in HTIP1, were added to designs to ensure consistency of approach and that where bus priority measures such as sections of bus lane, or bus priority signals would improve rather than compromise the design being recommended.

9.11 In each case, three levels of intervention were tested to determine the most effective option at each junction. The details of the results of these, and scheme concept drawings are set out in full in the report and its appendices.

9.12 **Cycle schemes**
In considering approaches for provision of cycle infrastructure, two approaches were considered, particularly in the context of the LTN1/20 cycle advice note, and also the existing Harrogate local cycling and walking improvement plan (LCWIP). These were online on-highways routes using the A61 main corridor, and then off-line adjacent routes, using side streets and quieter streets/lanes. Clearly these have different advantages and disadvantages and will be of greater or lesser appeal to different categories of cyclist with varying needs.

9.13 Two adjacent cycle routes were considered, one using Hornbeam Park Avenue and one using Oatlands Drive and the Coach Road. Both were considered to have merit and would benefit from further discussion with local and internal stakeholders.

9.14 Measures suggested for these routes include widening, lighting, resurfacing and traffic calming for motorised vehicles. In some cases, changes to the legal designated status of the route would be required.

10.0 IMPACT ASSESSMENT

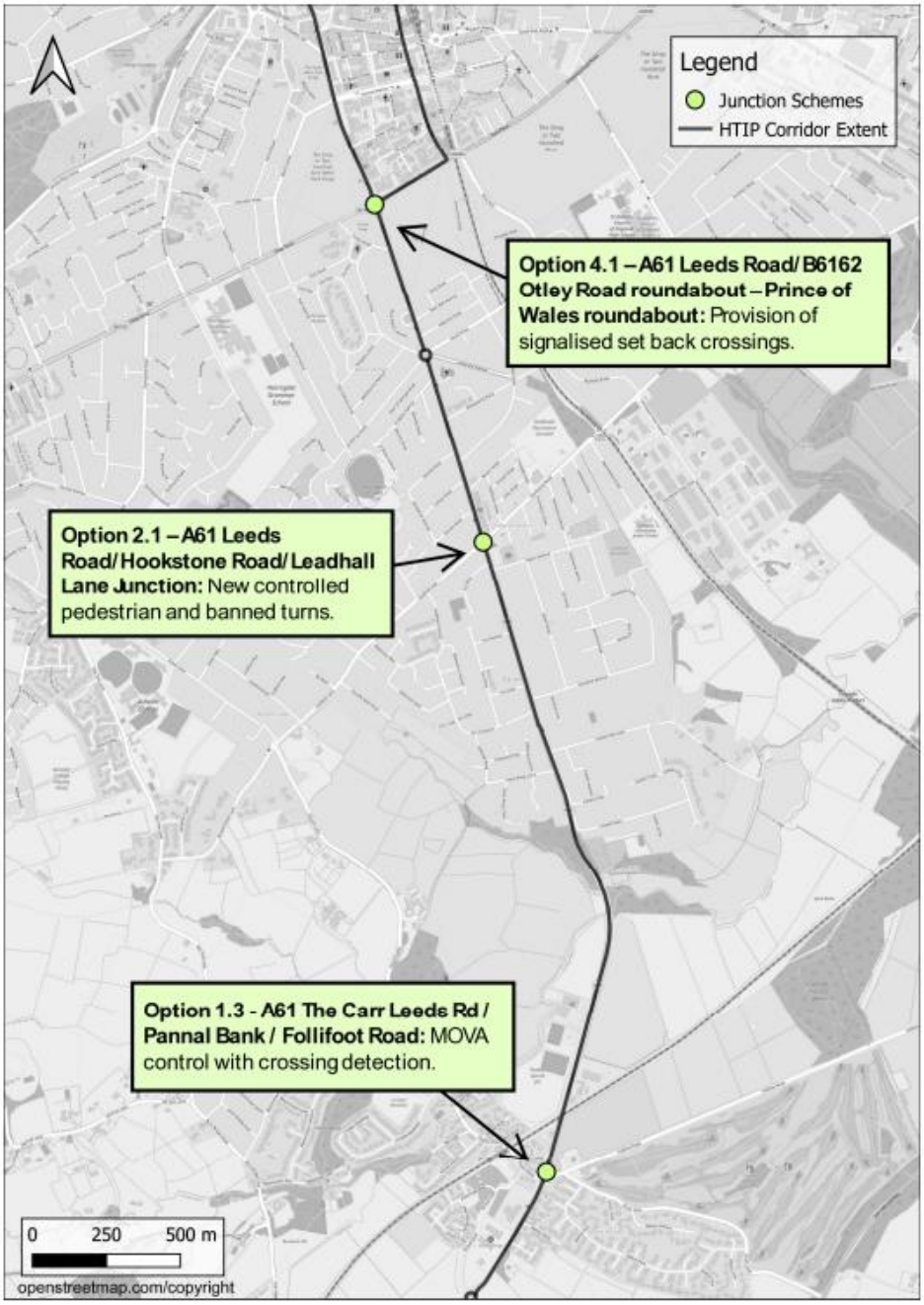
10.1 **Value for Money and Appraisal**
Once shortlisting had been undertaken, and interventions/concept designs had been developed, a further round of assessment against the objectives was undertaken. This was to ensure that the options remained consistent with the overall aims of the project, and that they did not compromise any of the other elements that had been progressed. Estimated cost was scored in this round of appraisal, alongside estimated carbon impact, deliverability and public acceptability. That information alongside the other objectives, allowed the interventions to be broadly ranked in terms of value for money.

10.2 The ranking as described above then lead to recommendations to be made on which elements to retain, and which to discount. The retained elements were used to form the three packages based on the level and ambition of intervention.

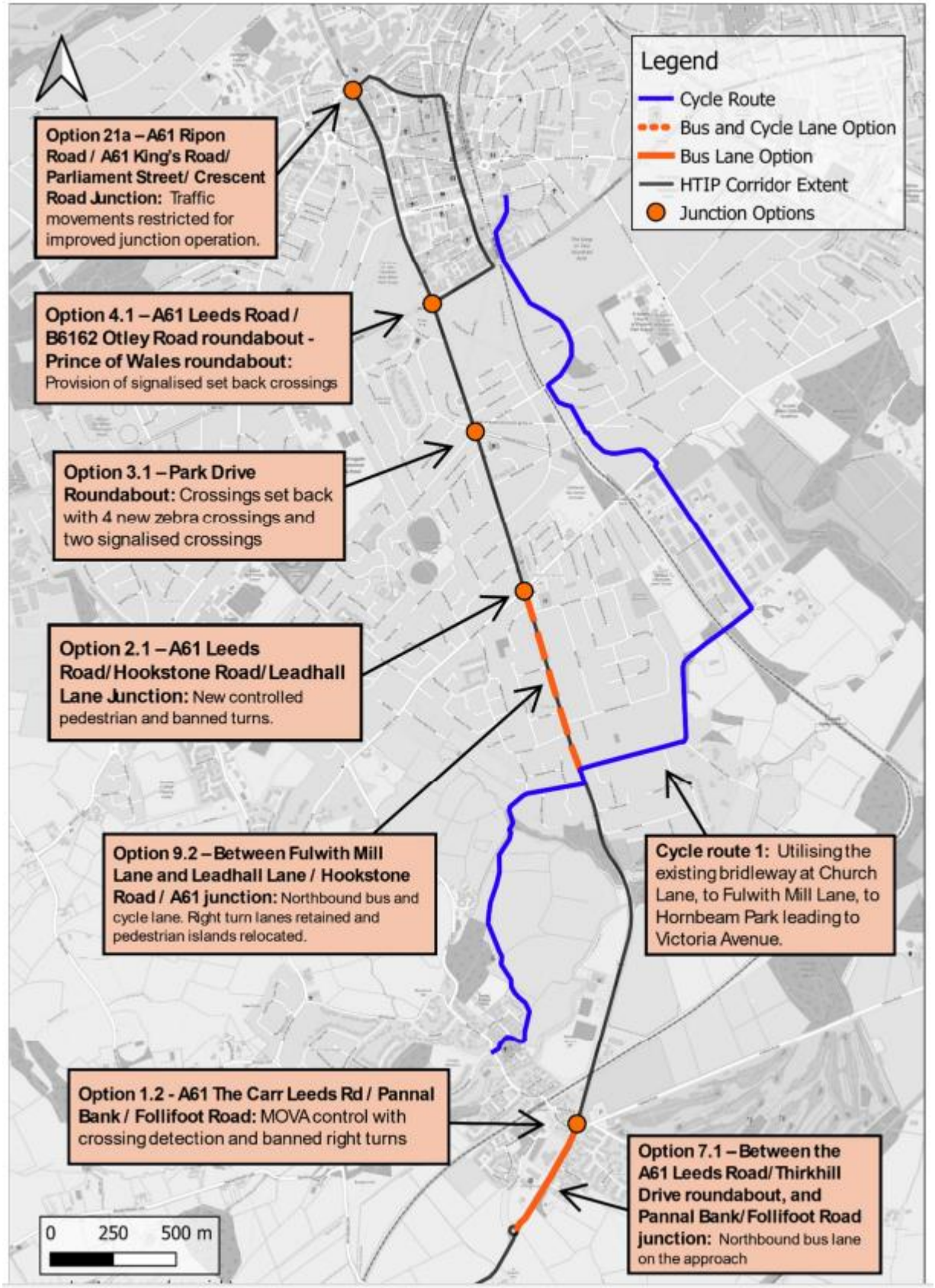
11.0 RECOMMENDED OPTION PACKAGING

11.1 The assessment that has been undertaken throughout this study has resulted in three packages of interventions being developed. Those packages range from low cost and in general, site specific, targeted interventions (i.e., the intervention is a standalone improvement in that particular area, but will not bring wider benefits as part of a wider, corridor consistent approach), do minimum, to high cost and high impact with opportunity to effect a greater overall change as part of a combination of interventions (do maximum). Irrespective of which package is deemed the most favourable to be taken forward for further development, in all cases it would be appropriate to undertake stakeholder and public consultation, which might lead to a further repackaging of the ultimate preferred option.

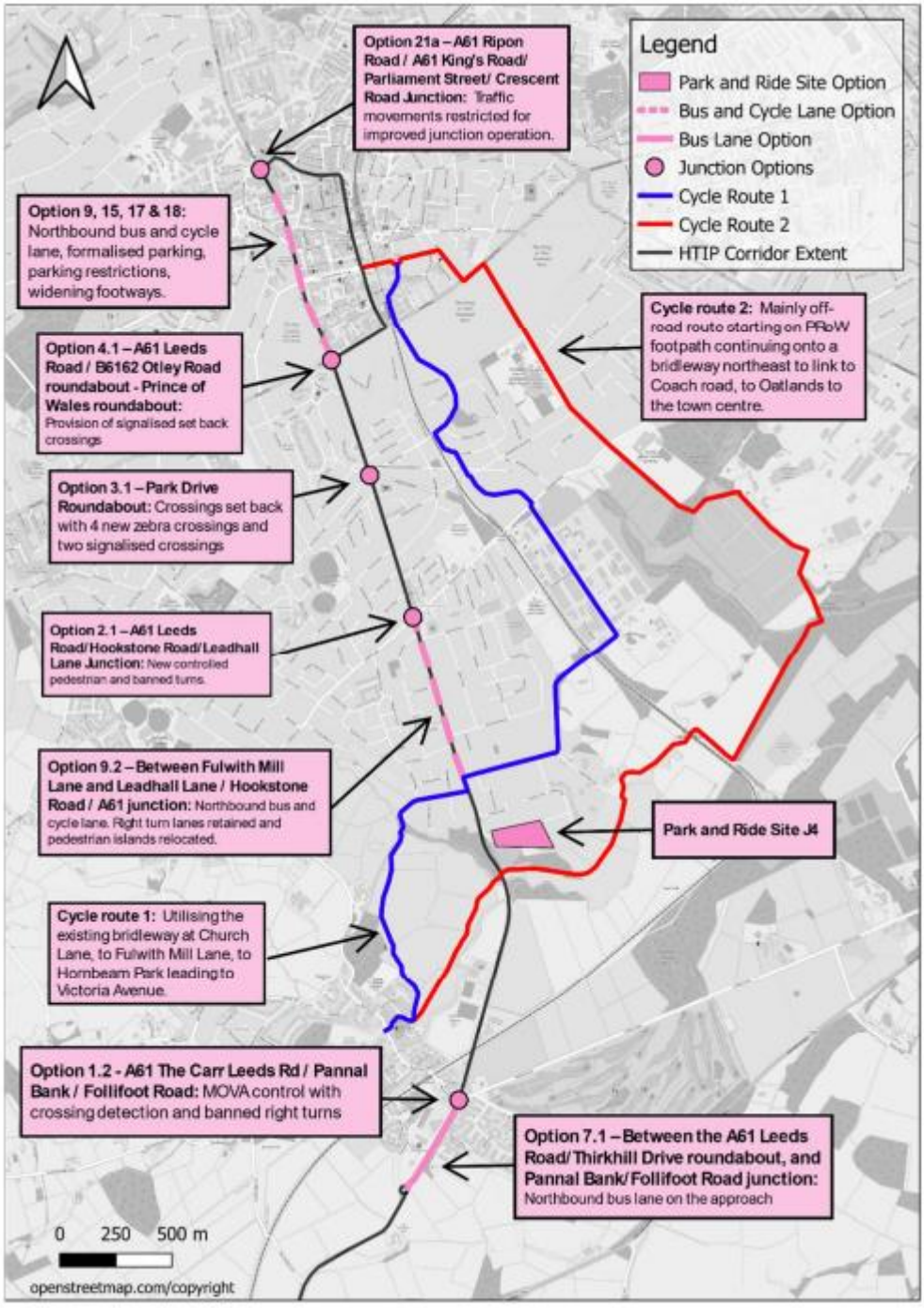
11.2 The do minimum package comprises three elements, predominantly quick wins, and the cost is estimated at around c£1.8m.



11.3 The do something package comprises 8 elements, and the costs are estimated at around £9m.


Legend
Cycle Route
Bus and Cycle Lane Option
Bus Lane Option
HTIP Corridor Extent
Junction Options
Option 21a – A61 Ripon Road / A61 King's Road/ Parliament Street/ Crescent Road Junction: Traffic movements restricted for improved junction operation.
Option 4.1 – A61 Leeds Road / B6162 Otley Road roundabout - Prince of Wales roundabout: Provision of signalised set back crossings
Option 3.1 – Park Drive Roundabout: Crossings set back with 4 new zebra crossings and two signalised crossings
Option 2.1 – A61 Leeds Road/ Hookstone Road/ Leadhall Lane Junction: New controlled pedestrian and banned turns.
Option 9.2 – Between Fulwith Mill Lane and Leadhall Lane / Hookstone Road / A61 junction: Northbound bus and cycle lane. Right turn lanes retained and pedestrian islands relocated.
Cycle route 1: Utilising the existing bridleway at Church Lane, to Fulwith Mill Lane, to Hornbeam Park leading to Victoria Avenue.
Option 1.2 - A61 The Carr Leeds Rd / Pannal Bank / Follifoot Road: MOVA control with crossing detection and banned right turns
Option 7.1 – Between the A61 Leeds Road/ Thirkhill Drive roundabout, and Pannal Bank/ Follifoot Road junction: Northbound bus lane on the approach
0 250 500 m

11.4 The do maximum package is the most ambitious, and the highest cost option, but provides the greatest scope to meet the scheme objectives. It is the only package that contains park and ride specifically within the corridor, although as the report notes to be optimal, more than one park and ride site would be desirable, subject to further assessment of site suitability.



12.0 STUDY CONCLUSIONS AND RECOMMENDATIONS

12.1 This phase of study has aimed to filter down a long list of potential interventions, to a smaller number of deliverables packaged options, taking into account the potential cost and deliverability of each option.

12.2 From this, three packages have been developed of varying scale and cost; these options are flexible and can be adjusted to meet local need and the funding opportunities that may become available.

12.3 It is recommended in the study that next steps on this project would include stakeholder and public engagement, pre-planning discussions particularly with regards to park and ride, and further design work and development of a funder-compliant business case on the remaining preferred option.

13.0 ALTERNATIVE OPTIONS CONSIDERED

13.1 The HTIP2 study, is the latest in a long-term assessment of potential options to reduce congestion, and improve opportunities for sustainable modes of travel, in Harrogate. Previous studies undertaken as part of this work have considered a range of transport options, which over time, and based on public engagement and government guidance, have been widened out, and then filtered down to the study noted here. This study itself offers a range of options, which as set out above, should be subject to further public and stakeholder engagement before a final preferred option is selected.

14.0 FINANCIAL IMPLICATIONS

14.0 There is currently no funding identified for any of the options within the HTIP report. It is suggested that as the Mayoral Combined Authority are now the Local Transport Authority for North Yorkshire and York, that future development work on this would be subject to this scheme being prioritised for further work as part of their pipeline of major schemes and funded through Local Transport Grant or similar funding streams.

15.0 LEGAL IMPLICATIONS

15.1 There are no specific legal implications arising from this report and its findings. Should any of the scheme elements progress to a further design stage, it is likely that there might be procedural legal requirements as a consequence of that.

16.0 EQUALITIES IMPLICATIONS

16.1 There are no specific equalities implications arising from this report and its findings.

17.0 CLIMATE CHANGE IMPLICATIONS

17.1 There are no specific climate change implications arising from this report and its findings. A high level carbon assessment, whish is qualitative, has been undertaken as part of this study. Should any of the scheme elements progress to a further design stage, there would be a requirement to undertake more detailed environment and climate change assessments.

18.0 REASONS FOR RECOMMENDATIONS

18.1 It is recommended that this study is passed to the York and North Yorkshire MCA for inclusion on their major schemes pipeline. Should the scheme be prioritised by the MCA for further development, it is recommended that full public and stakeholder engagement be undertaken, to determine which options to take forward, and also determine levels of support for intervention. Further, as part of any further scheme development, a full funder (DfT or MCA) compliant business case should be developed.

19.0 RECOMMENDATIONS

19.1 It is recommended that the Corporate Director for Environment in consultation with the Executive Member for Transport:

i) Note the contents of this report

ii) Request the inclusion of the HTIP outputs onto the Major Schemes Pipeline

iii) Note that there is no NYC funding currently identified for this and that a further report would need to come forward at the appropriate time to set out the proposed funding source if any NYC funding was required

APPENDICES: None

BACKGROUND DOCUMENTS: HTIP2 study report.

Karl Battersby
Corporate Director – Environment
County Hall
Northallerton
05 December 2025

Report Author – Louise Neale, Transport Planning Team Leader
Presenter of Report – Louise Neale, Transport Planning Team Leader

Note: Members are invited to contact the author in advance of the meeting with any detailed queries or questions.

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North Yorkshire Council

Environment Executive Members

19 December 2025

Storm Darragh Flooding on Rye Tributaries - December 2024

Report of the Assistant Director - Highways and Infrastructure

1.0 PURPOSE OF REPORT

1.1 To inform the Corporate Director – Environment and the Executive Member - Highways and Transportation on the conclusions and recommendations of the Flood Investigation report on the significant flood event that affected villages along tributaries of the River Rye on 07 December 2024.

1.2 To seek the approval of the Corporate Director - Environment, in consultation with the Executive Member – Highways and Transportation for the publication of the Section 19 Flood Risk Investigation Report on the North Yorkshire Council (NYC) website.

2.0 BACKGROUND

2.1 Section 19 of the Flood and Water Management Act 2010 (FWMA) requires Lead Local Flood Authorities (LLFAs) to investigate flooding incidents. (Appendix A).

2.2 When a flooding incident has occurred, the FWMA requires LLFAs to investigate which Risk Management Authorities have relevant flood risk management functions, and whether each of those Risk Management Authorities has exercised, or is proposing to exercise, those functions in response to the flood. Where a LLFA investigates, it is required to publish the results of its investigation and notify any relevant Risk Management Authorities.

2.3 As the LLFA, North Yorkshire Council's Flood Risk Management Team investigates all reported incidents of flooding accordingly, in a manner proportionate to the specific characteristics of the incident. The nature of the investigation may vary from a site visit and a data collection exercise, allowing officers to understand responsibilities and any action required by the relevant Risk Management Authorities, to a more formal investigation to be published under the FWMA.

2.4 The NY Flood Risk Strategy identifies the characteristics of a flood incident to be used to determine whether or not it is appropriate to undertake a formal Section19 Investigation in the aftermath of a flood, these are listed below:

- Level of support and engagement from other Risk Management Authorities
- Number of properties internally flooded
- The depth, area or velocity of flooding reported.
- The frequency of flooding in a given location
- The nature or extent of critical infrastructure impacted by the flood
- The nature or source of requests for an investigation received by NYC
- Whether the flood relates to a known issue

2.5 If an event fulfils one or more of these criteria, a formal investigation is progressed accordingly, and application of this principle has led to the undertaking of formal section 19 investigations concerning the event on 07 December 2024 in Kirkby Mills, Keldholme, Sinnington and Marton.

3.0 THE NYC SECTION 19 REPORT PROCESS

3.1 The information contained in the reports is collected through requests for data to all relevant risk management authorities, using the LLFA powers under section 14 of the Flood and Water Management Act 2010.

3.2 In the period following the flooding, the flood risk management team undertook site visits and hosted drop in sessions in the impacted villages in partnership with the Environment Agency and the Council's Resilience and Emergencies Team to assist and talk to residents about their experiences and to offer guidance and advice on the next steps of the investigation process.

3.3 As part of the drop-in sessions, leaflets were provided to all the households, details of the investigation and contact details for the flood risk management team were shared. A number of residents responded to our call for evidence by completing the post flood incident questionnaire and a number submitted further comprehensive accounts of the flooding.

3.4 Firsthand accounts were all taken into consideration within the report to ensure the shared concerns of the community were answered.

4.0 CONSULTATION UNDERTAKEN AND RESPONSES

4.1 North Yorkshire Councillors and the Parish/Town Councils representing the affected areas were also given opportunity to peruse the draft report and ensure that the content accurately reflected local understanding, where first hand evidence had been submitted and invited to a meeting to ask any further questions arising from the information in it.

4.2 The relevant Risk Management Authorities identified within the report have had sight of the final draft of the report and the opportunity to comment, prior to its publication.

5.0 FUTURE ACTION

5.1 The following recommendations are made as a result of the conclusions of the Section 19 report:

5.1.1 General:

- The LLFA to continue to deliver the existing property flood resilience scheme that will benefit properties in Keldholme, Kirkby Mills and Sinnington.
- All risk management authorities to continue responsive engagement and service within the villages.
- Environment Agency to continue engagement and increase education regarding the flood warning system and landowner and homeowner responsibilities.

5.1.2 Kirkby Mills:

- North Yorkshire Council Highways and Yorkshire Water to jointly investigate the drainage system north of the A170, focusing on interactions between the Yorkshire Water network, highway gullies, and the river near the Mill, and assess the potential benefit of installing a non-return valve at the outfall.
- North Yorkshire Council Bridges team and landowners to de-silt and regularly monitor the bridge to maintain flow capacity and reduce flood risk.

- Yorkshire Water to assess how the Combined Sewer Overflow affects river channel capacity and contributes to flood risk.
- Yorkshire Water to investigate the power failure of the pumping station and configure plan to avoid it happening in the future Environment Agency to engage riparian landowners to raise awareness of their responsibilities and take enforcement action on unconsented works, including the weir and Mill Race.

5.1.3 Keldholme:

- North Yorkshire Council Bridges as part of Local Highway Authority to continue to monitor silt levels under Keldholme Bridge.
- North Yorkshire Council as Local Highway Authority and LLFA to explore opportunities reduce Surface Water flow impacts on the Highway from the East.

5.1.4 Sinnington:

- North Yorkshire Council to work with landowners on riparian responsibility and engage in the education of surface water flow management.
- North Yorkshire Council to explore maintaining the existing flow pathway on Main Street at Land Adjacent to Riverdell is maintained in the event of any future proposals to develop the land.
- North Yorkshire Council Resilience and Emergency Team to assist in setting up a community action group with the assistance of Sinnington Parish Council.
- Environment Agency to investigate land levels on the right bank upstream of the A170 to assess whether any reinstatement of the flow path is required.

5.1.5 Marton:

- Environment Agency to review flood defence and tree management regime, work with landowners on educating riparian responsibility and undertake enforcement where needed.
- Environment Agency to submit funding bids to further repair the breach and carry out other maintenance of the flood embankments and river channel where a business case for investment can be made and where funding is available. This includes bank surveys to assess for low spots, embankment repairs and tree and vegetation clearance to aid conveyance.
- Yorkshire Water to demonstrate how separating out the surface water from the Combined system will not increase surface water flood risk if the river level is high and reduce bad connections as an output of the CCTV survey.
- North Yorkshire Council Resilience and Emergency Team to help set up a community action group with the assistance of Marton Parish.

6.0 FINANCIAL IMPLICATIONS

6.1 There are no financial implications in publishing the report which is a statutory obligation. The recommendations arising from the report are subject to available funding. If and when any grant funding is made available, NYC will need to review and re-prioritise its flood risk capital programme once the full funding requirements are known.

7.0 LEGAL IMPLICATIONS

7.1 This report and its recommendations are consistent with the discharge of the Council's duty as the LLFA to investigate flooding as set out in the Flood and Water Management Act 2010 and the Council's Local Flood Risk Management Strategy. The LLFA must publish a report on its investigations and notify any relevant risk management authority of those results. The purpose is so that it can be ascertained where responsibility for managing the flood risk lies and what is being done about it.

7.2 Information has been requested and provided by other risk management authorities to the LLFA in line with its powers under Section 14 of the Flood and Water Management Act.

7.3 Surface water drainage systems and ordinary watercourses are the responsibility of their riparian owners. North Yorkshire Council may have undertaken studies of the drainage systems using its powers available under Section 19 of the Flood and Water Management Act 2010 to investigate flood incidents in order to understand any mechanisms which may have contributed to the event and is not indicative of NYC taking any responsibility for the condition or maintenance of drainage systems in any location.

8.0 EQUALITIES IMPLICATIONS

8.1 Consideration has been given to the potential for any adverse equality impacts arising from the recommendation. It is the view of officers that the recommendation does not have an adverse impact on any of the protected characteristics identified in the Equalities Act 2010 or NYC's additional agreed characteristics (Appendix B).

9.0 CLIMATE CHANGE IMPLICATIONS

9.1 A Climate Change Impact Assessment is included, and it is noted that publishing the Flood Investigation Report will help to improve the preparedness and resilience of the community to future flooding. Climate change predictions indicating that these type of storm events will become more frequent, so it is critical that communities play an active role in building resilience to the increasingly prevalent risk of flooding (Appendix C).

10.0 REASONS FOR RECOMMENDATIONS

10.1 To provide a narrative and historical record of the events of 07 December 2024 in Kirkby Mills, Keldholme, Sinnington and Marton and make recommendations to improve the preparedness and resilience of the communities to flooding, whilst ensuring compliance with NYCs statutory obligation as the LLFA under the Flood and Water Management Act 2010.

11.0 RECOMMENDATION(S)

11.1 It is recommended that the Corporate Director - Environment, in consultation with the Executive Member for Highways and Transportation:

i) note the content of the Section 19 report and the response of Risk Management Authorities to the significant flood event that affected Kirkby Mills, Keldholme, Sinnington and Marton on 7 December 2024 and the future action recommended to improve the preparedness and resilience of the community to future flooding;

ii) approve the publication of the Section 19 Report on the Council's website (Appendix A).

APPENDICES:
Appendix A – Section 19 Flood Investigation Report – Rye Villages
Appendix B – Equalities Impact Assessment Screening Form
Appendix C – Climate Change Impact Assessment

BACKGROUND DOCUMENTS: None

Barrie Mason
Assistant Director – Highways and Infrastructure

County Hall
Northallerton
09 December 2025

Report Authors – Heather Lagan, Lead Local Flood Authority Senior Engineer, Hannah Baker Lead Local Flood Authority Flood Risk Project Manager and Emily Andre Lead Local Flood Authority Engineer

Presenter of Report – Meirion Jones, Lead Local Flood Authority Team Leader

FLOOD INVESTIGATION REPORT

Storm Darragh Flooding on Rye Tributaries December 2024

Report Issued December 2025

Acknowledgements:

North Yorkshire Lead Local Flood Authority Team would like to thank the following for their cooperation and assistance in this investigation:

Local residents for their knowledge and assistance

Yorkshire Water Services Ltd

The Environment Agency

North Yorkshire Council Highways Department

North Yorkshire Council Bridges Team

North Yorkshire Council Resilience & Emergencies Team

North Yorkshire Council Major Incident Response Team

Report Author

Heather Lagan MSc
Senior Flood Risk Engineer, Lead Local Flood Authority, North Yorkshire Council

Hannah Baker BSc(Hons)
Flood Risk Project Manager, Lead Local Flood Authority, North Yorkshire Council

Emily Andre BSc(Hons)
Flood Risk Engineer, Lead Local Flood Authority, North Yorkshire Council

Copyright

Records of the public sewer system included are a facsimile of the statutory record provided by Yorkshire Water Services Ltd (YWSL). For the purposes of this report minor sewers and other non-relevant data have been omitted from the plans for clarity.

Contents

1. Executive Summary

On the 7th of December 2024, as a result of Storm Darragh over 87 properties were affected by flooding, with 81 experiencing internal flooding across the River Rye catchment. Storm Darragh brought intense rainfall and damaging winds across the UK and Europe, resulting in significant flooding across North Yorkshire. This report focuses on the communities of Kirkby Mills, Keldholme, Sinnington, and Marton.

The report draws on the best available data, including hydrological records and resident accounts, to assess flood risk and response. Analysis shows that while local rainfall totals were moderate (15–16 mm), saturated ground conditions and intense upstream rainfall (up to 80 mm) led to rapid runoff and high river levels. River level records were broken at Kirkby Mills and Sinnington, with the River Dove peaking at 2.454 m and the River Seven at 2.614 m.

Each village experienced distinct flooding mechanisms:

- Kirkby Mills: Combined surface water and River Dove fluvial flooding, exacerbated by pumping station failure.
- Keldholme: River Dove overtopping and surface water accumulation, with concerns over highway drainage and surface water flows.
- Sinnington: River Seven overtopping, surface water runoff from surrounding land, and gaps in flood warning system uptake.
- Marton: Breach of flood defences due to tree uprooting, blocked field drainage, reduced channel maintenance from the Environment Agency, a build-up of wrack affecting overland flows, and wind-driven water movement.

Considerations have been made as to the condition and performance of local drainage networks, using data from North Yorkshire Council and Yorkshire Water to assess whether infrastructure issues contributed to the severity of flooding.

Emergency response efforts were swift and effective, with rest centres, welfare support, and coordinated recovery operations deployed across affected areas. Medium and long-term resilience measures are underway, including a Property Flood Resilience (PFR) scheme and a Natural Flood Management (NFM) project aimed at reducing overall flood risk to some communities.

This report provides a comprehensive account of the December 2024 flood event and makes several recommendations to improve future flood resilience across the River Rye catchment.

2. Scope/purpose of report

This document has been prepared specifically for the purpose of meeting the requirements of Section 19 of the Flood and Water Management Act 2010.

The purpose of this report is to investigate which Risk Management Authorities (RMAs) had relevant flood risk management functions during the flooding on 7th December 2024, and whether the relevant RMAs have exercised, or propose to exercise, their risk management functions (as per section 19(1)

of the Flood and Water Management Act 2010). It does not address wider issues beyond that remit. The report focusses on the flooding in Kirkby Mills, Keldholme, Sinnington, Marton, Nunnington, Pickering and surrounding areas, it does not extend to other parts of the district or county.

The supporting data has been put together based on reports of flooding from a variety of sources. Whilst every effort has been made to verify the locations that were flooded, the nature of the data and the methods used to collate this information mean that it does not include every occurrence of flooding. Private individual properties which flooded are not identified in this report. This data only identifies general areas where flooding has been reported to the Lead Local Flood Authority (LLFA) and is indicative only.

3. Flood and Water Management Act (2010)

In his review of the summer 2007 floods, Sir Michael Pitt recommended that local authorities should be given a duty to investigate flooding.

The Flood and Water Management Act 2010 (FWMA), defines the roles and responsibilities of 'Risk Management Authorities' and designates the unitary or upper tier authority for an area as Lead Local Flood Authority (LLFA).

The LLFA has responsibility for leading and co-ordinating local flood risk management. Local flood risk is defined as the risk of flooding from surface water runoff, groundwater and small ditches and watercourses (collectively known as ordinary watercourses). The responsibility to lead and co-ordinate the management of tidal and fluvial flood risk remains that of the Environment Agency (EA).

The Act also implements the recommendations made by Sir Michael Pitt that local authorities should have a duty to investigate flooding from all sources.

4. Section 19 Investigation Requirement

North Yorkshire Council, as LLFA, has a responsibility under Section 19 of the FWMA to investigate significant flood incidents in its area. Section 19 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.

Section 14 of the FWMA grants the LLFA power to request information associated with its functions. These powers have been exercised in the preparation of this report.

5. Trigger for Section 19 Report

The incident has been assessed in line with the criteria set out in Section 3 of the North Yorkshire County Council Local Flood Risk Strategy (2015) and has been judged to warrant a formal Section 19 investigation based on:

- The relationship with the functions of other Risk Management Authorities.
- Number of properties internally flooded.
- The depth, area or velocity of flooding reported.
- The nature and extent of critical infrastructure impacted by the flood.

6. Event background

6.1. Location of this investigation

This report investigates flooding incidents relating to Storm Darragh, on the 7th of December 2024, causing widespread wind damage, power outages and flooding across the UK and Europe. In North Yorkshire, the Lead Local Flood Authority (LLFA) were made aware of internal property flooding in Kirkby Mills, Keldholme, Sinnington, Marton, Nunnington and Pickering.

The flooding in Nunnington and Pickering involved an isolated number of properties, whilst equally devastating, this would not in isolation meet the trigger levels for a Section 19. Furthermore, looking at these locations in more detail would risk identifying individual properties. In accordance with section 3 of the North Yorkshire Local Flood Risk Strategy, all reported properties have been recorded and this report will therefore focus on the areas where significant levels of property flooding were reported to the council, these are: Kirkby Mills, Keldholme, Sinnington and Marton.

6.2. Kirkby Mills

Kirkby Mills (X: 470411, Y: 485945) is a small linear village roughly 0.7km east of Kirkbymoorside, with the A170 road running through the middle of Kirkby Mills. The River Dove flows to the east of Kirkby Mills, from the north in a southerly direction. Towards the north of Kirkby Mills, The Dove is split at a weir, into the Mill Race – a watercourse historically used by The Cornmill.

The etymology of Kirkby Mills likely comes from the Old Norse for “Church by the Mills”, with Kirk often relating to a place of worship.

LLFA records indicate that the drainage system in Kirkby Mills is a Yorkshire Water combined system. This combined system generally runs to the south, towards the Kirkbymoorside Waste Water Treatment Works. Yorkshire Water records note two Combined Storm Overflow outfalls in the River Dove, these both spilled in 2024, with Yorkshire Water noting this was due to “Hydraulic Capacity Issues”[1].

The local bedrock geology of Kirkby Mills is split between the north and the south. The north predominately comprises of the Upper Calcareous Grit Formation, of which sandstone is the most common constituent. To the south, the bedrock geology predominately comprises of the Ampthill

[1] https://theriverstrust.org/key-issues/sewage-in-rivers

Clay Formation and the Kimmeridge Clay Formation, generically formed of mudstone. Kirkby Mills has a layer of superficial deposits, comprising of Alluvium, clays, silts, sands and gravels, associated with The River Dove.

The annual rainfall from the nearest Met Office weather station, Fylingdales, is 979.68mm. [2]

6.3. Keldholme

Keldholme (X: 470958, Y: 486189) is a small village that is just to the northeast of Kirkby Mills. Grey Lane/Village Street runs from the north of Keldholme, connecting to the A170 to the south. The River Dove flows into Keldholme from the north, passing below Keldholme bridge, before bending towards the west 150m downstream of the bridge.

Keldholme is thought to be Scandinavian in origin, translating to island or river meadow near the spring. Historically, Keldholme was home to a Cistercian Nunnery named Keldholme Priory, which was situated on the northern bank of the River Dove in the west of Keldholme. Nothing remains of The Priory, save its namesake in some of the properties that exist on the site.

The foul water system in Keldholme appears to be primarily privately owned, with residents managing septic tanks. Yorkshire Water have no records of foul services in the area.

The local bedrock geology of Keldholme, is similar to Kirkby Mills as above.

The annual rainfall from the nearest Met Office weather station, Fylingdales, is 979.68mm.

6.4. Sinnington

Sinnington (X: 474428, Y: 485596) is a small linear village located approximately 3 miles to the east of Kirkbymoorside. The A170 connects the town to the wider highways network to the south of the village. The River Seven flows along the west of Sinnington, from north to south. At Sinnington Bridge, in the centre of Sinnington, The Seven meanders to the west, before continuing to flow towards the south.

The name Sinnington is likely derived from the name of the river the settlement resides on the banks of, such as farm or homestead on the Seven.

The drainage system in Sinnington appears to be a mix of Yorkshire Water foul, combined and private networks.

[2] Fylingdales Location-specific long-term averages

Figure 1 Yorkshire Water waste network map of Sinnington

The local bedrock geology of Sinnington predominately comprises of the Ampthill Clay Formation and the Kimmeridge Clay Formation, generically formed of mudstone. Sinnington has a layer of superficial deposits, comprising of Alluvium, clays, silts, sands and gravels, associated with The River Seven.

The annual rainfall from the nearest Met Office weather station, Fylingdales, is 979.68mm.

6.5. Marton

Marton (X: 473476, Y: 483241) is a small village approximately 2.87 miles to the southeast of Kirkbymoorside and 1.77 miles to the south of Sinnington.

Marton resides in a bend of the River Seven, which runs from the north of Marton, under Marton Bridge towards the south/southeast. Marton Bridge separates the east and west of Marton.

The local bedrock geology of Marton predominately comprises of the Ampthill Clay Formation and the Kimmeridge Clay Formation, generically formed of mudstone. Above this lies a superficial deposit of lacustrine deposits of clay, silt and sand.

The annual rainfall from the nearest Met Office weather station, High Mowthorpe, is 771.16mm[3].

7. History of flooding

A review has been undertaken of existing records of historical flooding including sources from, North Yorkshire Council Highways and Lead Local Flood Authority records, the Environment Agency's historic flood event outlines, historical newspaper records[4] and various correspondence from members of the public. The following flood history has been compiled from the information that has been made available to NYC.

It should be noted that the history of flooding is not exhaustive. North Yorkshire Council Lead Local Flood Authority team can only hold records when we are made aware of flooding.

7.1. History of flooding – River Dove

- July 1872 - Kirkby Mills: Streams rose 36 inches in a few minutes, causing significant flooding – York Herald
- July 1930 - Keldholme: Local properties flooded – Malton Messenger
- 1946 - Keldholme: Houses damaged by flooding with 3-4 ft of water – Yorkshire Post
- Autumn 2000 - Keldholme: Several properties flooded
- August 2002 - Kirkby Mills: Several properties flooded
- September 2008 - Kirkby Mills: Several properties flooded
- October 2020 - Kirkby Mills: Several properties flooded

7.2. History of flooding – River Seven

- May 1864 - Sinnington: Streams rose with unexampled rapidity carrying down trees and rocks – Yorkshire Gazette
- 1866 - Sinnington: Village flooded – Yorkshire Gazette
- 1866 - Marton: Water was 5ft deep in the village – Yorkshire Gazette

[3] High Mowthorpe Location-specific long-term averages
[4] https://www.jbatrust.org/wp-content/uploads/2020/09/Yorkshire-Rye-and-N-York-Moors.pdf

- Summer 1872 - Sinnington: Summer thunderstorms lead to many houses being flooded – York Herald
- August 1878 - Marton: All access to Marton suspended – York Herald
- November 1878 - Sinnington: Floodwater covered the village green – Malton Messenger
- September 1880 - Sinnington: Railway station was an island amongst floodwater, with some stating the flooding was worse than the 1878 flood event – Yorkshire Gazette
- June 1895 - Sinnington: The whole village was flooded from the Seven – Yorkshire Post
- September 1931 - Marton: Floodwater 10ft deep, in some places the flood water reached bedroom windows – Yorkshire Gazette
- September 1931 - Sinnington: The village was speedily inundated with many of the houses invaded by flood water. It is noted that all the records of flooding on the River Seven were broken – Yorkshire Gazette
- Autumn 2000 - Sinnington: Several properties flooded
- August 2002 - Sinnington: Around 10 homes were flooded and flood water cut off both ends of the village – York Press
- June 2007 - Sinnington: River Seven broke its banks, flooding the village – York Press and resident records
- June 2007 - Marton: Village was flooded with sandbags deployed – York Press
- September 2008 - Sinnington: The River Seven flooded homes with homeowners wading through three feet of water – York Press

7.3. Flooding summary

The River Dove and River Seven catchments have a long and well documented history of flooding, with events dating back to the 19th century and continuing into the 21st century. These flood events have repeatedly impacted communities including Keldholme, Kirkby Mills, Sinnington, and Marton, often causing significant property damage and disruption.

The most recent event occurred on the 7th December 2024, associated with Storm Darragh. This brought high rainfalls levels, resulting in both fluvial and surface water flooding.

8. Current understanding of flood risk

This section focuses on the perceived level of flood risk based on the current best available data and flood mapping.

The Rivers Dove and Seven run generally to the south from their sources in the North York Moors National Park. They both run into the River Rye, 4km apart from each other, which in turn joins the River Derwent 11km to the east. The difference in elevations between the northern steeper catchment and more southerly flatter catchment has a strong influence on the flood generating capacities of rivers. In the steeper north, rainfall will turn rapidly into surface runoff flowing quickly down into steep watercourses. Steeper river gradients and therefore higher flow velocities in the upper parts of the catchment also give greater erosive power to the rivers. In contrast the flat nature of the south of the catchment will generally mean that the onset of any flooding will be less rapid and flow velocities lower.

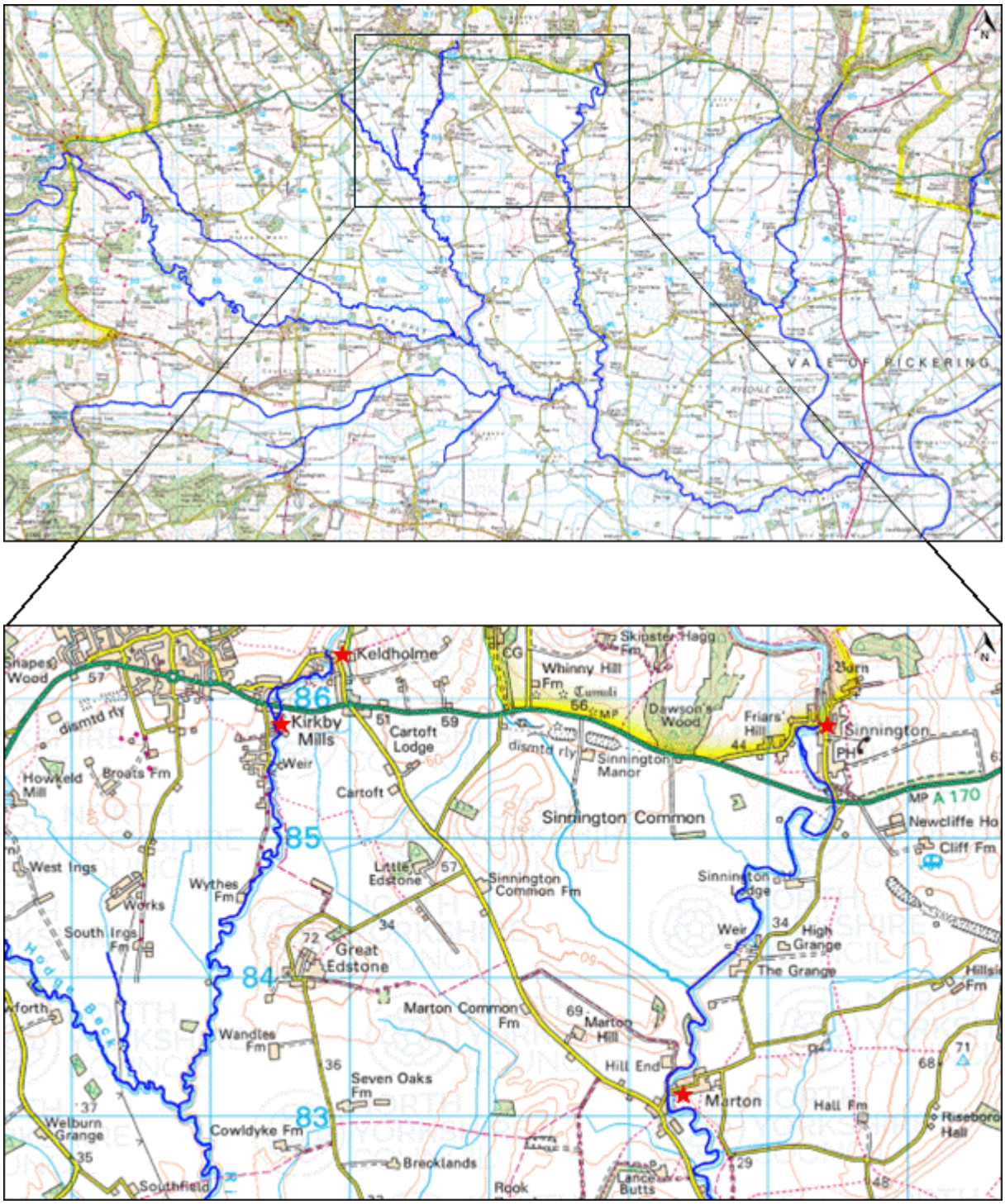


Figure 2 Fluvial map, showing the location of Keldholme, Kirkby Mills, Sinnington and Marton. Keldholme and Kirkby Mills are located on the River Dove and Sinnington and Marton are on the River Seven. Both rivers flow downstream to join the River Rye.

In general, Keldholme, Kirkby Mills and Sinnington are located on the “toe” of the North York Moors, on the transition between the steeper northern catchments and the flatter southern catchments. Due to the location of these villages, the rivers are likely to respond quickly to rainfall events higher up

the catchment. Marton is located South of Sinnington, with topographically high points of Marton Hill, Golden Hill and Riseborough Hill surrounding the village.

A review of the Scarborough Borough and Ryedale Level 1 Strategic Flood Risk Assessment (SFRA), November 2021 has been undertaken. In the SFRA the villages of Kirkby Mills, Keldholme, Sinnington and Marton were identified as having residential properties at risk of flooding.

Further information regarding the risk of flooding can be found on the publicly available Flood Map for planning[5]. The Flood Map for planning Flood Zones have been created by the Environment Agency to be used within the planning process as a starting point in determining how likely somewhere is to flood. There are 3 flood zones as defined by the Environment Agency for river flooding:

1) Flood Zone 1 – Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
2) Flood Zone 2 – Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
3) and Flood Zone 3 – Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)

The mapping is also generally limited to watercourses with a catchment area greater than 2km^2. This means that some of the smaller watercourses may not have an indicative flood extent recorded on the system.

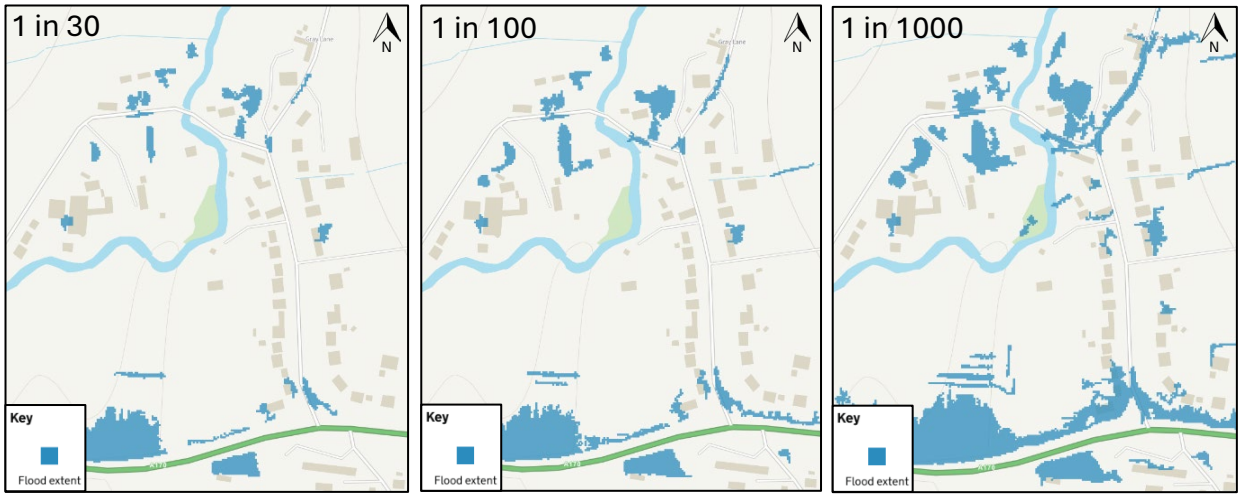
There are also 3 risk categories that breakdown the annual likelihood of surface water flooding:

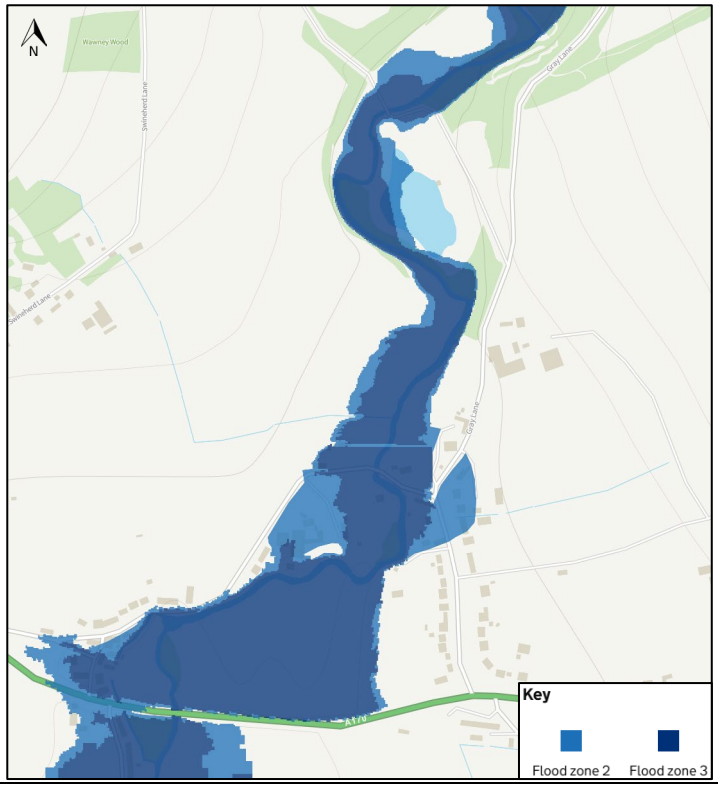
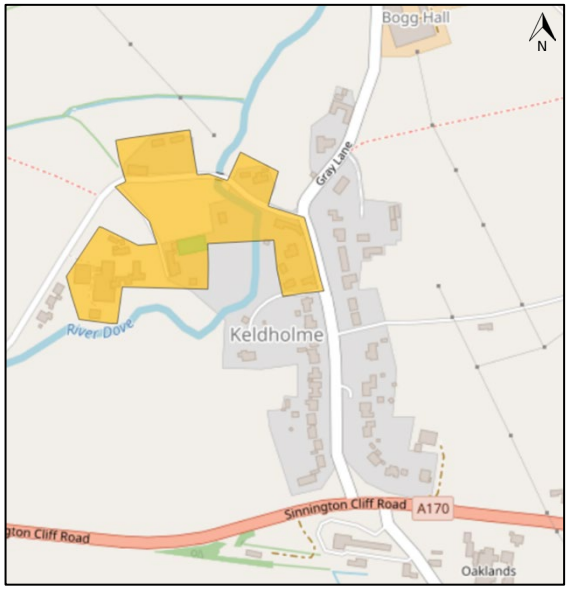
1) 1 in 30-year – (3.3%) chance of flooding each year
2) 1 in 100-year – (1%) chance of flooding each year
3) 1 in 1000-year – (0.1%) chance of flooding each year

These areas have been defined following a national scale modelling project for the Environment Agency and are regularly updated using recorded flood extents and local detailed modelling. The mapping is largely based on modelled data and the information it therefore provides is indicative of the expected flood extent. The information is not sufficiently detailed to demonstrate risk at individual property level, primarily because the Environment Agency do not hold details about properties and their door thresholds and floor levels. Properties with higher floor levels may not always face the same chance of flooding as the areas that surround them.

A mapped assessment of risk for each of the investigation areas are set out below.

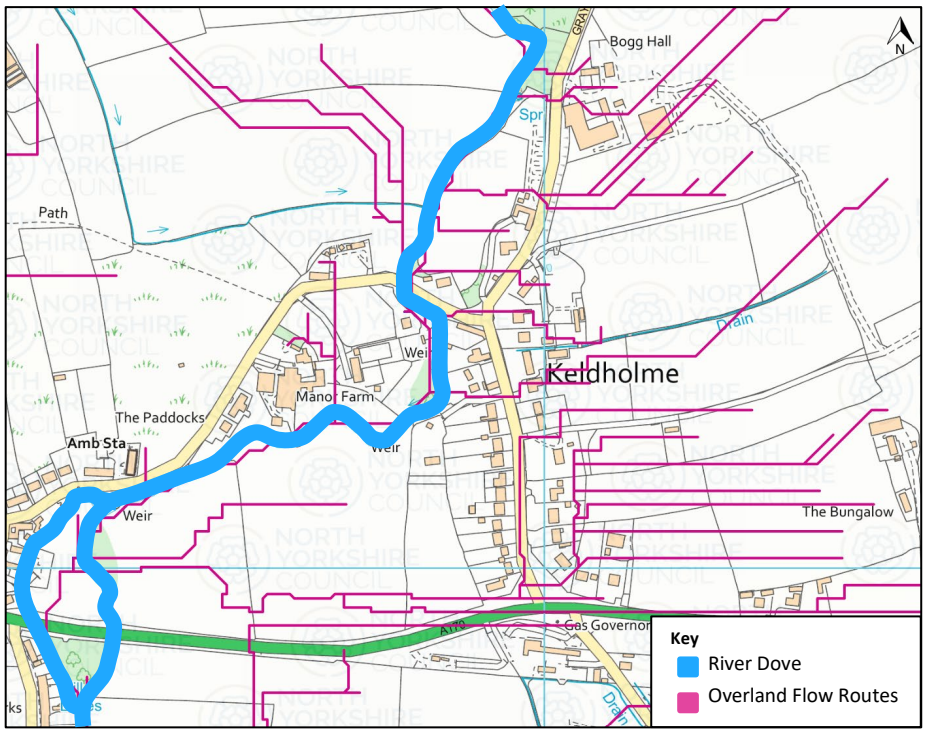
[5] https://flood-map-for-planning.service.gov.uk/location

	Assessment of Flood Risk
Keldholme Surface water risk	 While the overall risk of surface water flooding to Keldholme is relatively low, there are patches of high risk throughout the village. These are most notable in two sections of the village, to the south where Village Street meets the A170 and the northern end of the village. The south of Keldholme is the lowest point of the village, with multiple overland flow paths converging at this point. To the east there is risk of surface water flooding associated with overland flow routes. Surface water flooding risk is linked to the topography of the land and overland flow routes.

Keldholme Fluvial flood risk		The Government flood map for planning indicates that the west of Keldholme is in Flood zone 3, with some parts along Gray Lane and Village Street in Flood zone 2.
Keldholme Flood warning alert areas and known flood defences		A western section of Keldholme is included within a Flood Warning Area. The warning is known as "122FWF809 Properties on Dove Way, Kirkby Mills, and Keldholme". There are no known flood defences in Keldholme.

Keldholme

Overland flow Routes

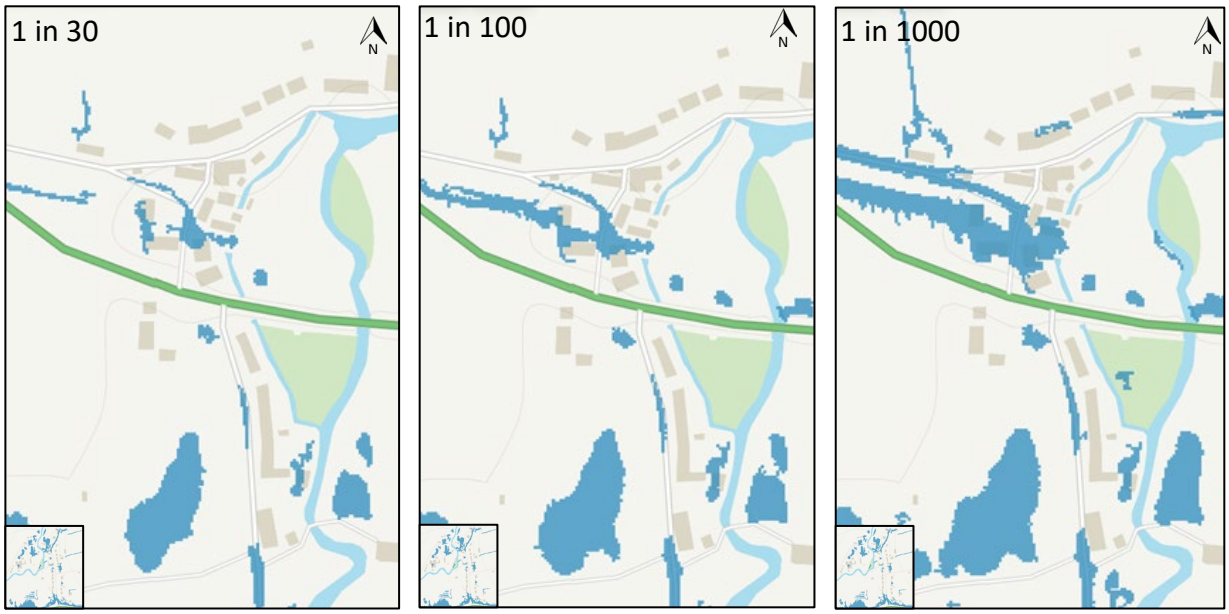
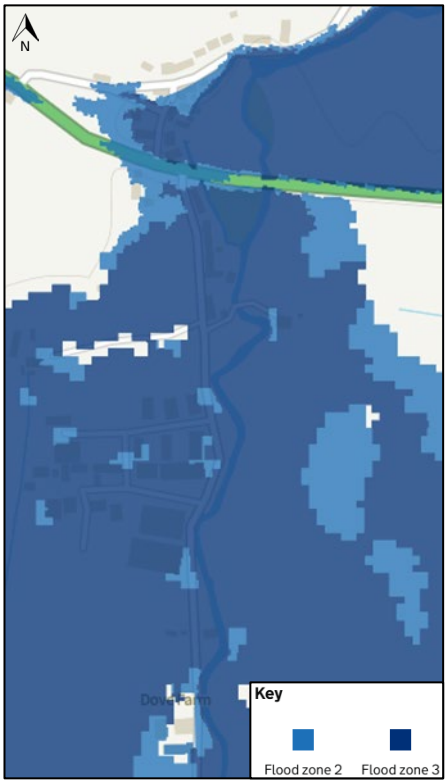


Overland flow paths are the route that water takes over the surface. These are closely linked to the topography of the landscape, however they can also be impacted by physical features such as roadways and properties.

There are multiple prominent routes in Keldholme, most notabley on the eastern side of the village flowing from east to west, following the hill side, to the River Dove. These are the paths runoff takes from the surrounding fields.

Overland flow paths can be closely linked to the roadways present, with a path following the southern section of Gray Lane, and a number of paths following the northern border of the A170. This is tied to high surface water flood risk.

Overland flow paths converge along the back of properties to the southern end of Gray Lane, and at points along the northern end of Gray Lane.

Kirkby Mills Surface water flood risk	 A surface water flow route can be identified in the northwest of the above map, travelling south past the Kirkbymoorside Cricket ground. A further area can be found on the road to the north of the A170. Further areas of risk can be found running along Kirkby Mills Road, to the south of the A170.
Kirkby Mills Fluvial flood risk	 Kirkby Mills is covered fully by Flood zone 2 and 3, except for a small area to the north.

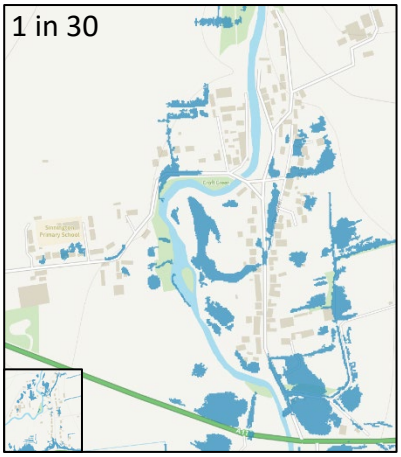
Kirkby Mills

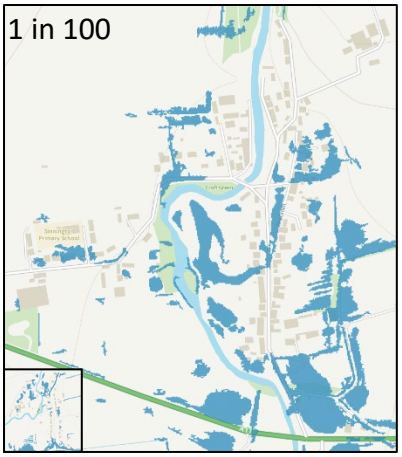
Flood warning alert areas and known flood defences

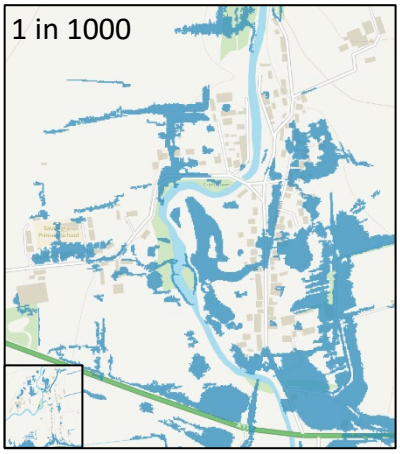
Areas to the west of the River Dove are included within a Flood Warning Area. The warning is known as “122FWF809 Properties on Dove Way, Kirkby Mills, and Keldholme”.

Sinnington

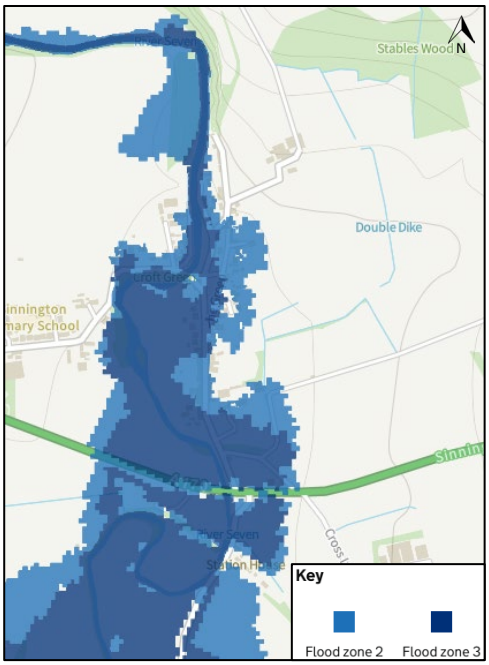
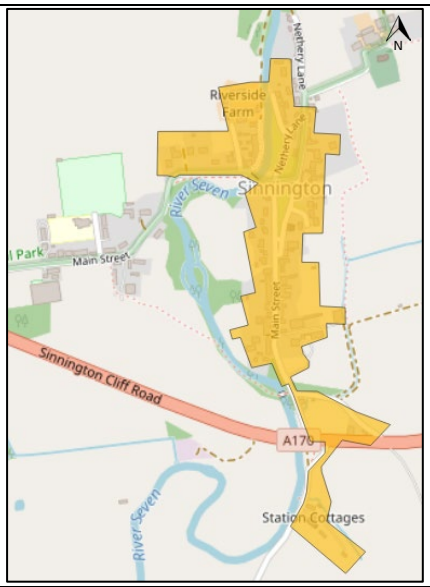
Surface water flood risk





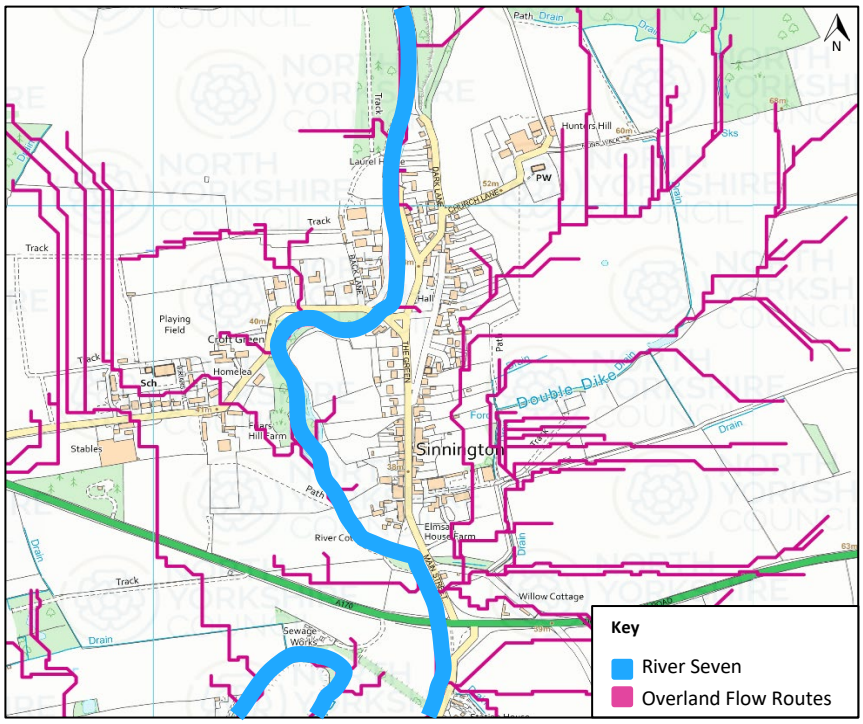


A large portion of Sinnington is at a high risk of surface water flooding. Areas of risk are present throughout the village, the most apparent being to the southeast on the fields behind The Green. This is potentially linked to the drain network present.

Sinnington Fluvial flood risk		As shown on the Government Flood Maps for planning, a large portion of Sinnington is in Flood Zone 2 and 3. The properites along Main Street and The Green, along the eastern edge of the river, are most affected by this. While most properties to the west are in Flood Zone 1.
Sinnington Flood warning alert areas and known flood defences		122FWF627 Properties along Main Street in the village of Sinnington

Sinnington

Overland Flow Routes



Overland flow paths follow the topography of Sinnington.

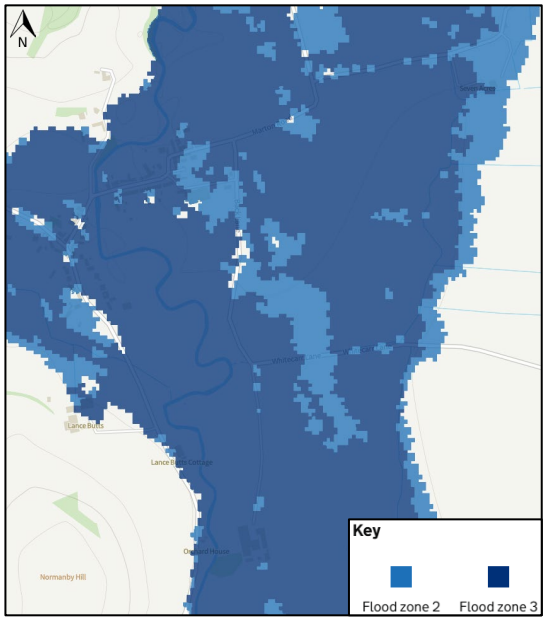
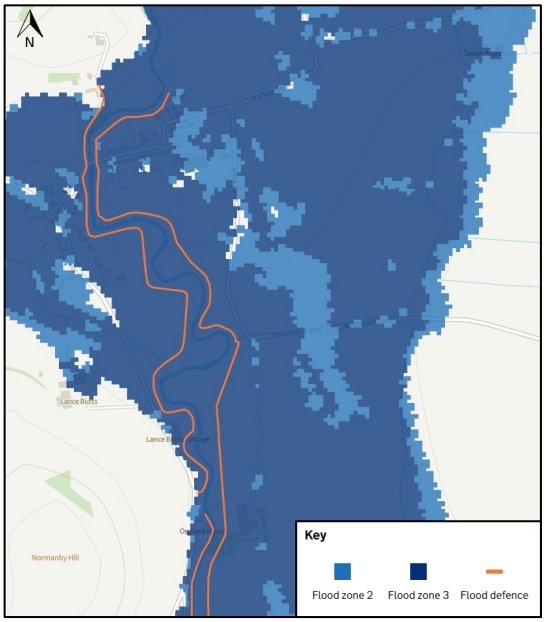
On the east of the River Seven, water flows northeast to southwest. Flows come from Stables wood to the north, and from the fields to the east. All the eastern overland flows converge at one point near The Poplars, to the south of Sinnington, before joining the River Seven.

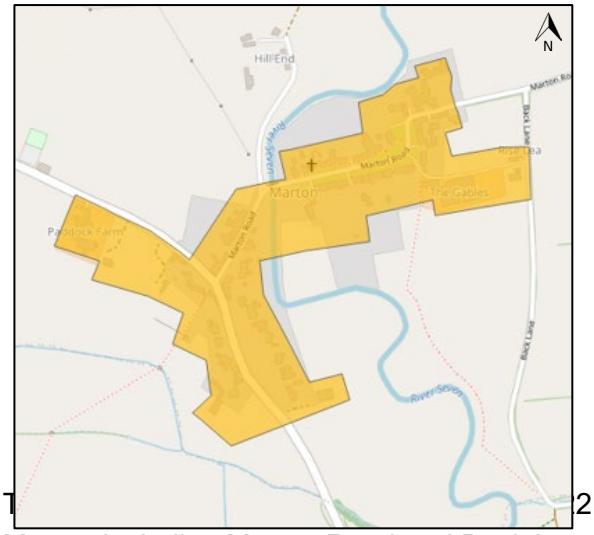
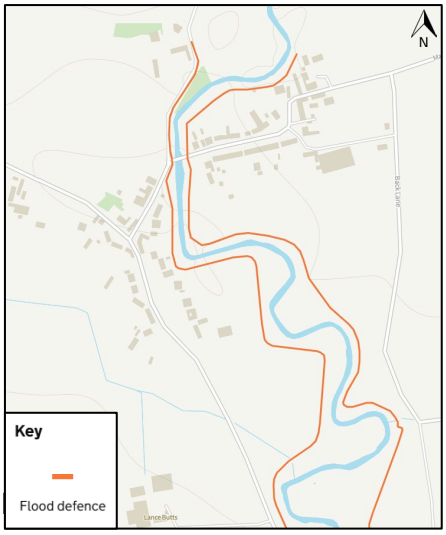
On the west of the River Seven there is a section of parallel overland flow routes that converge near the roadway, this is tied to an area of high surface water flood risk.

Throughout Sinnington a vast number of the areas at risk of surface water flooding, as shown in the flood risk maps above, can be linked to overland flow routes.

Marton

Surface water flood risk

	While areas of risk can be seen throughout the town, the most prevalent area is to the north-west. This section is a relatively flat, low point with slopes to the north and southwest, suggesting that the high surface water flood risk is linked to the topography of the landscape.
Marton Fluvial flood risk	  All of Marton is in Flood Zone 2 and 3, with the majority of properties being in Flood Zone 3. The map to the right shows the location of the flood defences, as described in the map below, however does not display the impact this has on the flood zones.

Marton Flood warning alert areas and known flood defences	  T 2 in the village of Marton including Marton Road and Back Lane. The orange line identifies the current known flood defences for Marton, this is a series of flood embankments along the banks of the River Seven.

9. Maintenance responsibilities

A "watercourse" is any river, stream or channel – including ditches, dikes, drains, culverts, cuts, sluices, sewers (except public sewers) through which water flows either permanently or periodically. Often a watercourse will be the boundary between two adjacent landowners and where this is the case the boundary is deemed to be the centre of the channel, the owner of the land or property on each side being responsible for maintenance of their side. This is referred to as Riparian Responsibility[6]. Culverts under roads are usually the responsibility of the relevant Highway Authority, either National Highways or North Yorkshire Council. Watercourses are designated as either being "main" rivers or "ordinary" watercourses.

The Environment Agency has powers, but not a duty, to carry out maintenance and regulate riparian activities on watercourses which have been designated as "Main" rivers. Where an immediate heighted risk of flooding has been identified, the Environment Agency may choose to act on those powers to remove obstructions to flow or enter into discussion with the riparian land owners to

[6] (Owning a watercourse - GOV.UK).

alleviate the immediate risk. The Environment Agency also has powers to build and maintain flood defences on these rivers where deemed necessary, proportionate and when funding is available. Within the Section 19 Investigation area, the River Dove and River Seven are designated Main rivers.

Watercourses which are not listed above, including Double Dike in Sinnington, are ordinary watercourses, and responsibility for these rests with their riparian owners. North Yorkshire Council as Lead Local Flood Authority has powers to enforce riparian owners to undertake maintenance, which are exercised proportionally according to the degree of flood risk.

Yorkshire Water is responsible for managing and maintaining the network of public sewers throughout the investigation area. Public sewer networks are either combined systems, where foul and surface water drain through the same pipes to the local waste water treatment works, or are separate systems where foul water is conveyed to the sewage works and surface water is conveyed either to a local watercourse or other receiving body of water, or to a point at which it joins the combined sewer network. The villages in this report are mostly served by combined and Foul Sewer systems, however there are some private foul systems in place.

10. Investigation

10.1. Rainfall event – location, depth and duration

The Met Office Seasonal Assessment for Autumn 2024[7] notes that autumn rainfall for the UK was 10% lower than the long-term average rainfall, however, large spatial differences were noted. For England, the autumn average rainfall was 20% higher than the long-term average rainfall. On the 23rd of November, Storm Bert hit the UK as the second named storm of the season. This brought 6 hours of persistent and extensive rainfall on the 23rd of November, with intermittent rainfall continuing into the 24th November[8]. This produced disruptive surface water flows and high river levels, which had a significant impact across Wales, with road flooding present within North Yorkshire. Between Storm Bert and the onset of Storm Darragh, 2 weeks of frequent short duration intermittent rainfall was present in the Rye area. Prior to the onset of Storm Darragh, on Thursday 5th December there were 2 hours of sustained intense rainfall, which maintained high river levels within the Derwent catchment. Storm Darragh, the fourth named storm of the season, began with a low-pressure weather system tracking to the west of Ireland 6th December 2024. Red warnings for wind and yellow rain warnings were implemented for the UK on the 7th of December, with damaging winds and torrential rainfall predicted.

[7] Microsoft Word - Seasonal Assessment - Autumn24
[8] Microsoft Word - 2024_09_storm_bert_conall.docx

The weather chart (Figure 3) illustrates the location of the weather system over the UK and demonstrated that the UK was hit with a north westerly wind direction. The UK's prevailing wind direction is westerly or south westerly, the wind direction for Storm Darragh is not typical for a winter UK storm in this catchment. The below radar image demonstrates the rainfall that occurred over the region from 06:00 on the 7th December until 00:00 on the 8th December. The higher rainfall totals appear to correlate to the location of higher topography (North York Moors National Park), also known as orographic rainfall. The higher rainfall totals align with the source of the Rivers Dove and Seven, located within the North York Moors National Park.

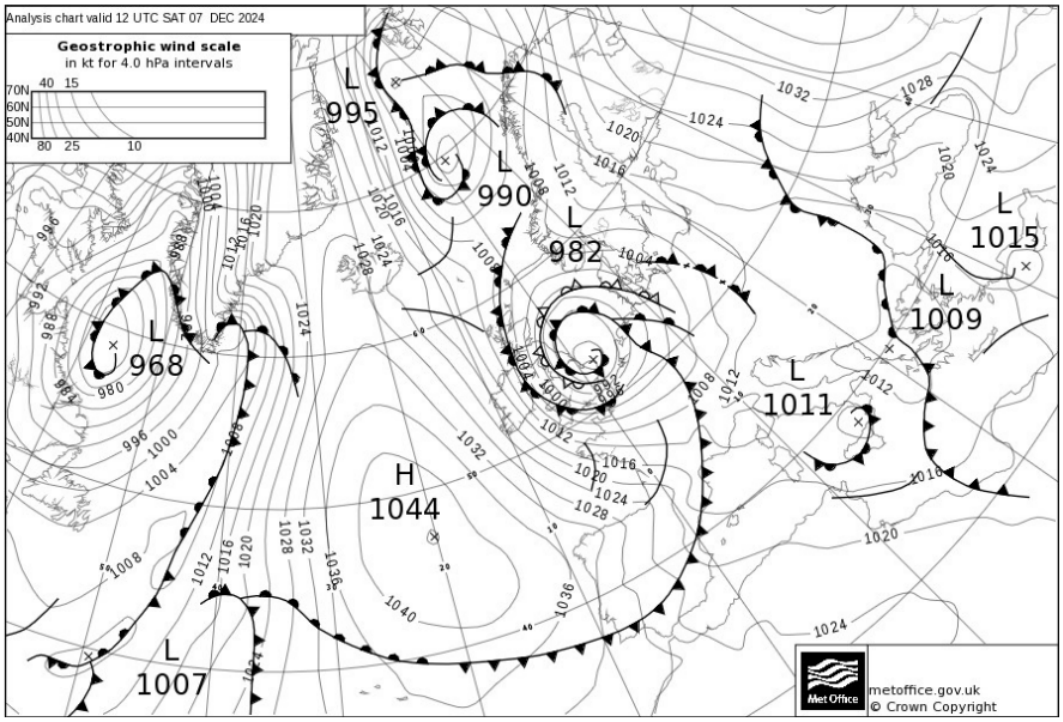


Figure 3 Location of weather system over the UK

For analysis and risk estimation purposes, the magnitude of rainfall is often expressed as return periods. A return period is a statistic derived from historical data and is the average time between events. For example, a rainfall event can be described as a 1 in 100 year rainfall event which means there is a 1% chance of that rainfall occurring in any given year.

Rainfall data provided to the LLFA from Yorkshire Water for the 7th of December 2024 recorded a peak rainfall intensity of 1 in 1 year return period at the areas that suffered flooding. The rainfall event also lasted approx. 12 hours, from roughly 9am to 9pm and totalled at 15.5mm of rainfall. Rainfall data provided by the Environment Agency from the sources of the River Dove and Seven, higher up in the catchment indicated a higher return period of 1 in 25 years, with about 80mm of rainfall accumulated within 25 hours. Met Office total rainfall maps are generally in agreement with the Environment Agency data (FIGURE XX).

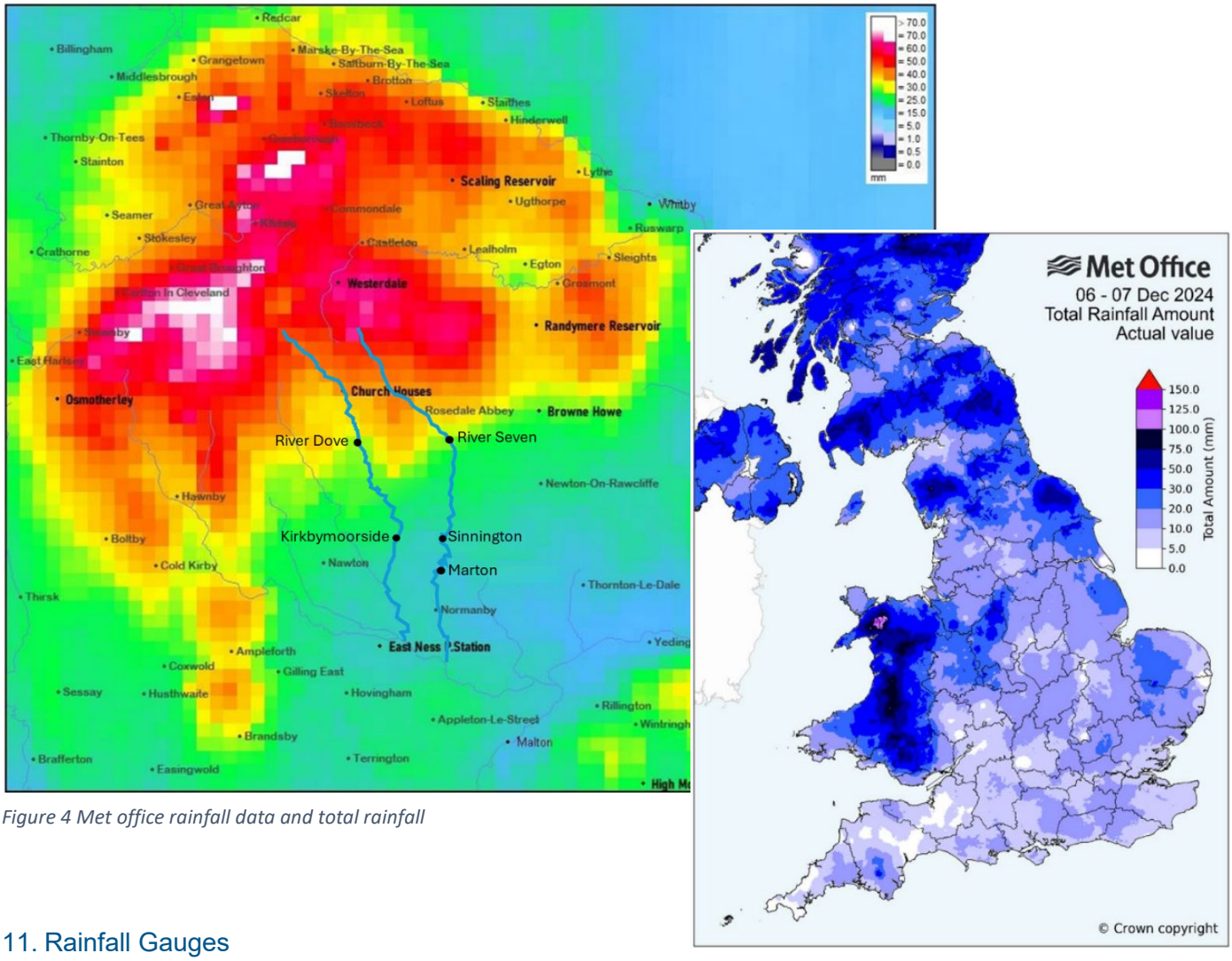


Figure 4 Met office rainfall data and total rainfall

11. Rainfall Gauges

11.1. Local Yorkshire Water Rainfall Gauges

The Yorkshire Water rainfall gauges are located locally within Kirkby Mills, Sinnington and Marton, so provide in situ records for the areas impacted by flooding. The rainfall gauges are corroborated against radar levels. The following graphs demonstrate the hourly rainfall for each area for the time of the Storm Darragh rainfall event.

Peak recorded rainfall for Kirkby Mills and Keldholme occurred at 16:45 with 2.11mm of water falling in an hour, with an accumulated rainfall of 11.3mm. By the end of the night, rainfall accumulations for the Kirkby Mills and Keldholme area had totalled 15.52mm.

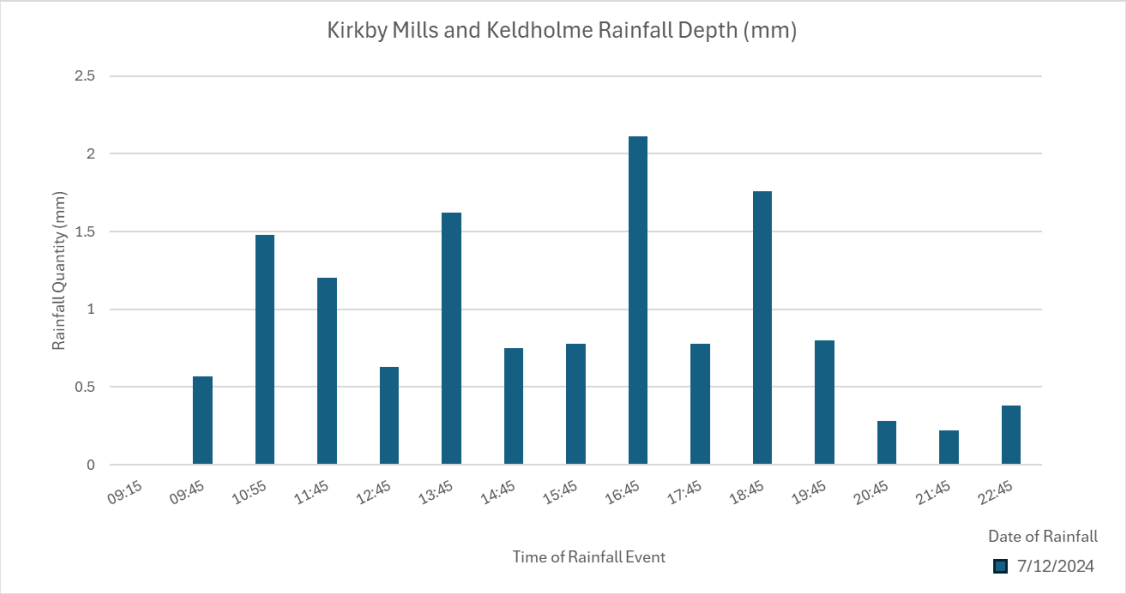


Figure 5 Kirkby Mills and Keldholme Rainfall Depth

The recorded peak rainfall for Sinnington on the 6th of December occurred at 20:50 with a total of 2.25mm for the hour. Peak rainfall on the 7th of December occurred at 10:50 with 1.46mm of rainfall recorded. By the end of the night, rainfall accumulations had totalled 14.55mm.

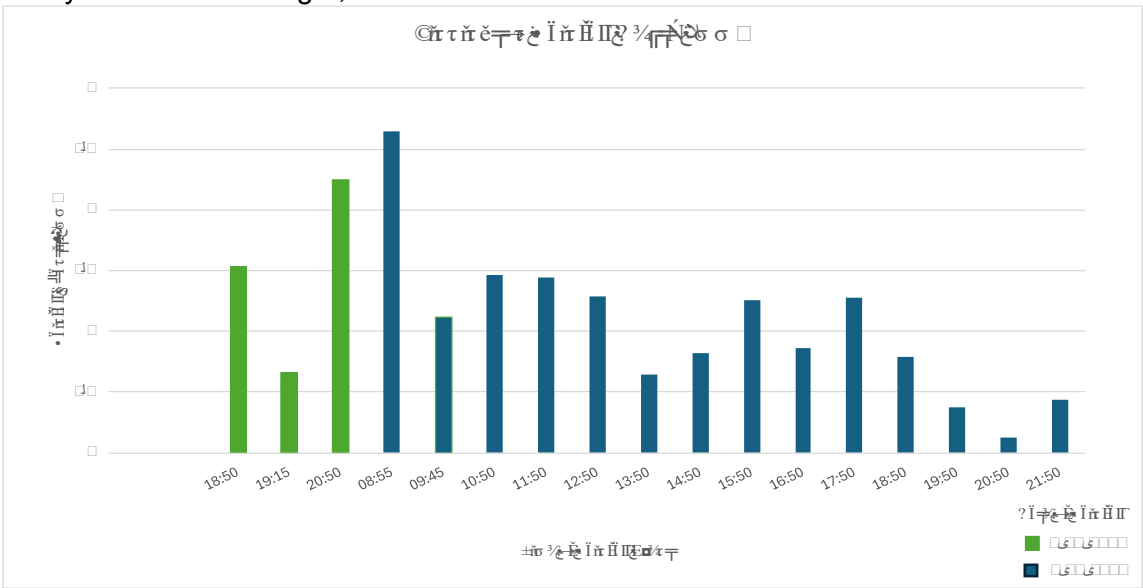


Figure 6 Sinnington Rainfall Depth

The reported peak rainfall for Marton occurred at 11:50 with a total of 1.44mm recorded for the hour. Peak rainfall accumulations totalled 14.34mm by 20:50.

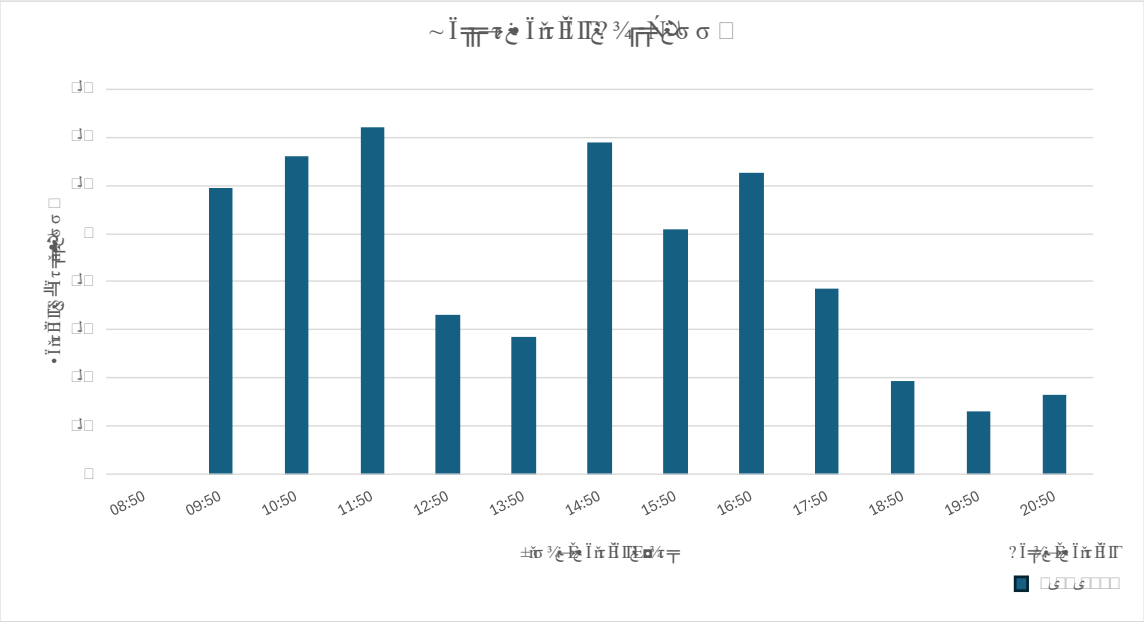


Figure 7 Marton rainfall depth

11.2. Environment Agency Rainfall Gauge vs River Level Data

The Environment Agency provided North Yorkshire Council rainfall data from their gauge at Church Houses, within the North York Moors National Park. The location of the rain gauge covers areas of the upper catchment of the River Dove.

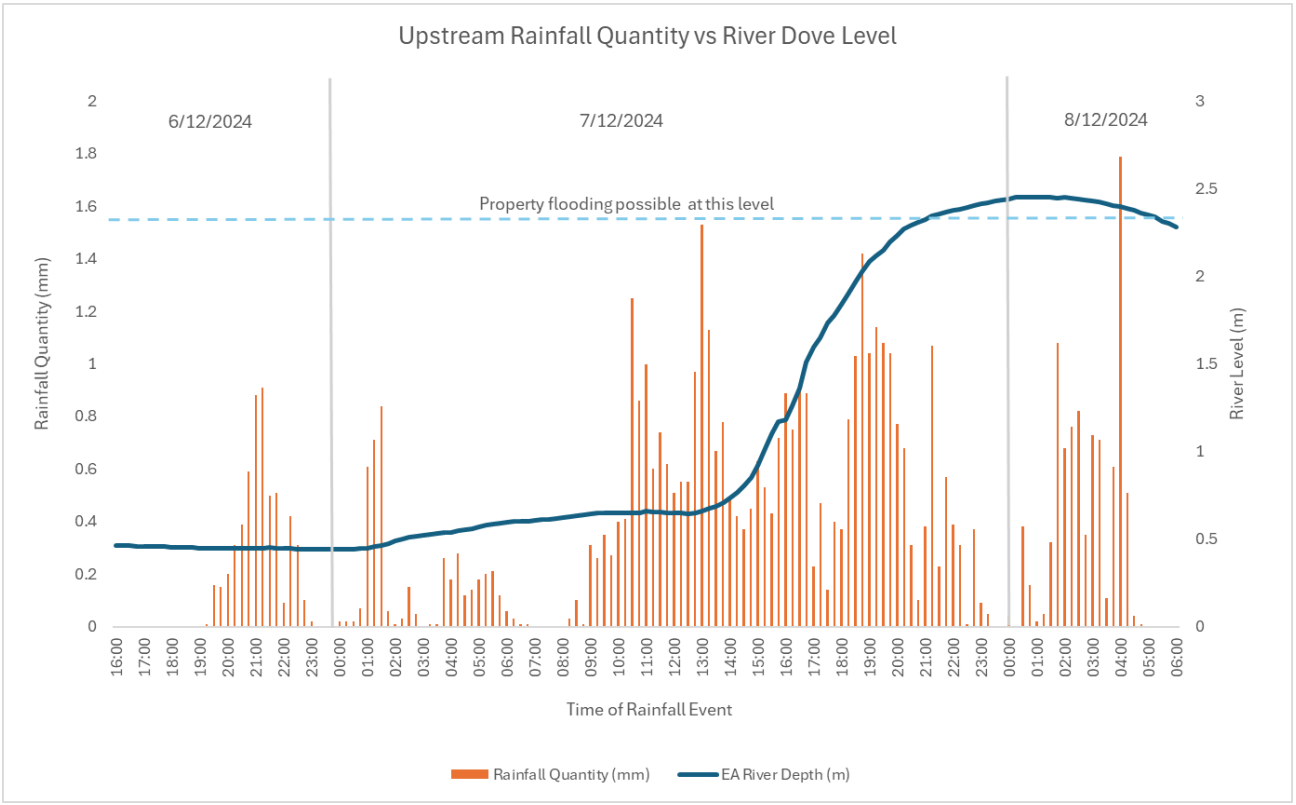


Figure 8 Upstream rainfall quantity vs River Dove level

The graph shows rainfall in the Dove catchment generally continued to fall from 19:00 on the 6th of December through to 04:45 on the 8th of December. Peak rainfall on the 6th of December occurred at 21:15 with a total of 0.91mm. Peak rainfall on the 7th of December occurred at 13:00 with a total of 1.53mm. Peak rainfall with totals of 1.79mm occurred at 04:00 on the 8th of December. In total, 55.07mm of rainfall fell within the gauge. The graph has the river level at Sinnington overlaid, there is an approximate lag time between rainfall and river level change of around 3.5-4 hours for the more intense rainfall spikes.

The Environment Agency provided North Yorkshire Council rainfall data from their gauge at Brown Howe, within the North York Moors National Park. The location of the rain gauge covers areas of the upper catchment of the River Seven.

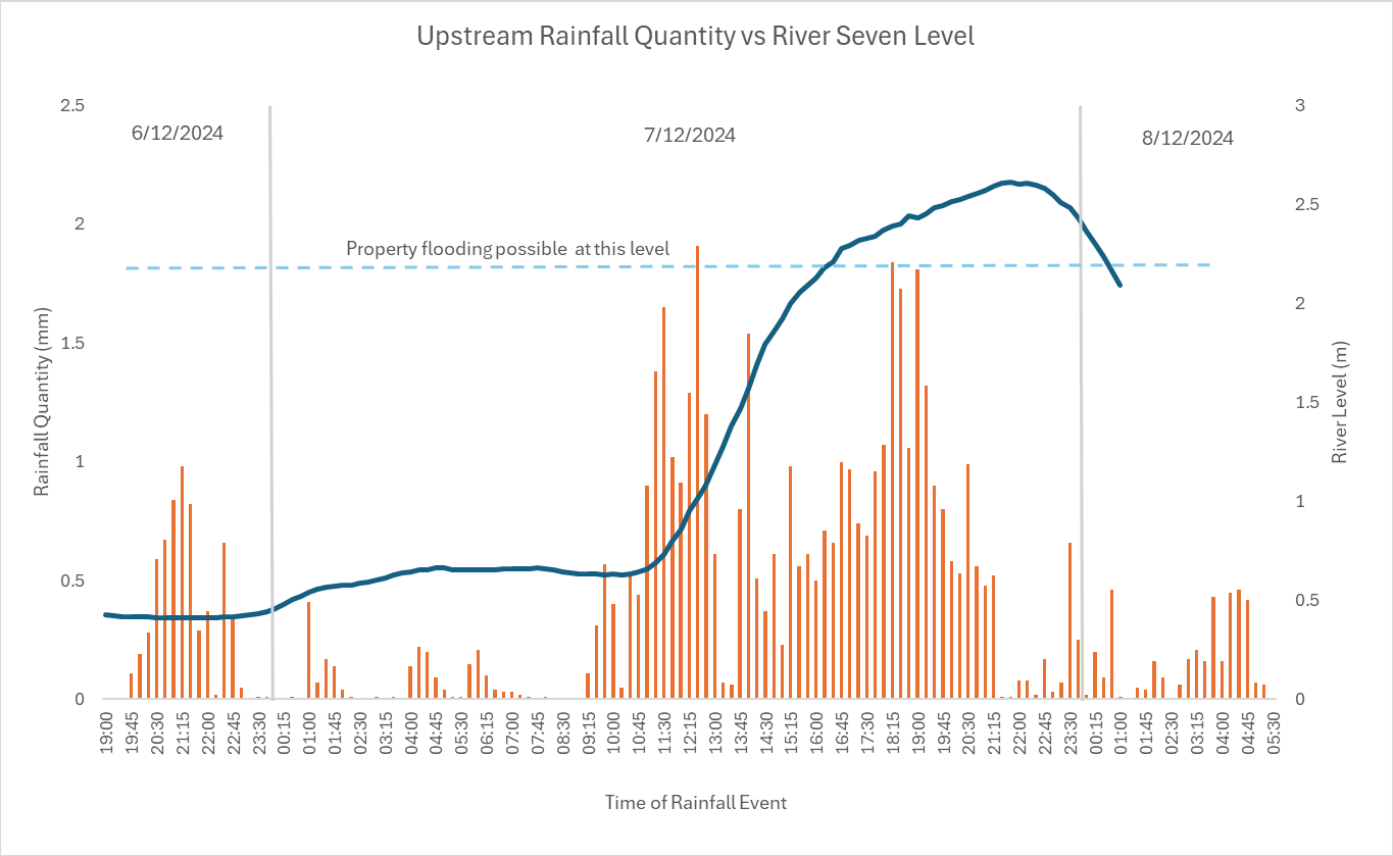


Figure 9 Upstream rainfall quantity vs River Seven level

The graph shows rainfall generally continued to fall from 19:30 on the 6th of December through to 05:30 on the 8th of December. Peak rainfall on the 6th of December occurred at 21:15 with a total of 0.98mm. Peak rainfall on the 7th of December occurred at 12:30 with a total of 0.91mm. Peak rainfall with totals of 0.46mm occurred at 00:45 and 04:30 on the 8th of December. In total, 53.59mm of rainfall fell within the gauge. The graph has the river level at Sinnington overlaid, there is an approximate lag time between rainfall and river level change of around 3.5-4 hours for the more intense rainfall spikes.

11.3. Rainfall discussion

The average rainfall locally for the villages impacted by flooding is around 15mm, which is not an unusually large amount of rainfall, however, it did fall persistently. The rainfall landed on already saturated land, leading to minimal infiltration and surface water flows, via the identified surface water routes within section 7.3.

The Environment Agency rainfall data is taken roughly from 8.5miles north/upstream of Kirkby Mills. The rainfall in this topographically higher area totalled 53.59mm for the entirety of the rainfall event, higher than the rainfall in the locally flooded areas.

12. Average River Level Data

To better understand how the rainfall has impacted river levels, data on the daily average river level of The Dove and Seven was requested from and supplied by the Environment Agency. The following graphs demonstrate the average base level of each river in November, and how the rivers responded to Storm Bert, 2 weeks of intermittent heavy rainfall, a 1 in 5 heavy rainfall event and Storm Darragh.

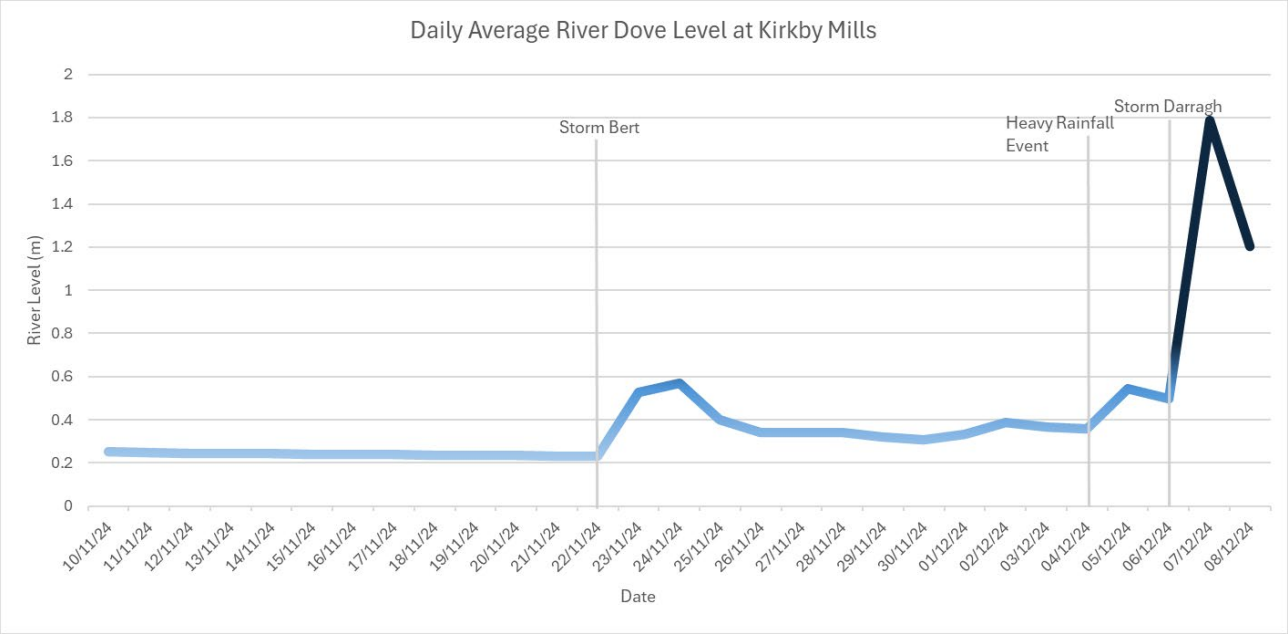


Figure 10 Daily average River Dove level at Kirkby Mills

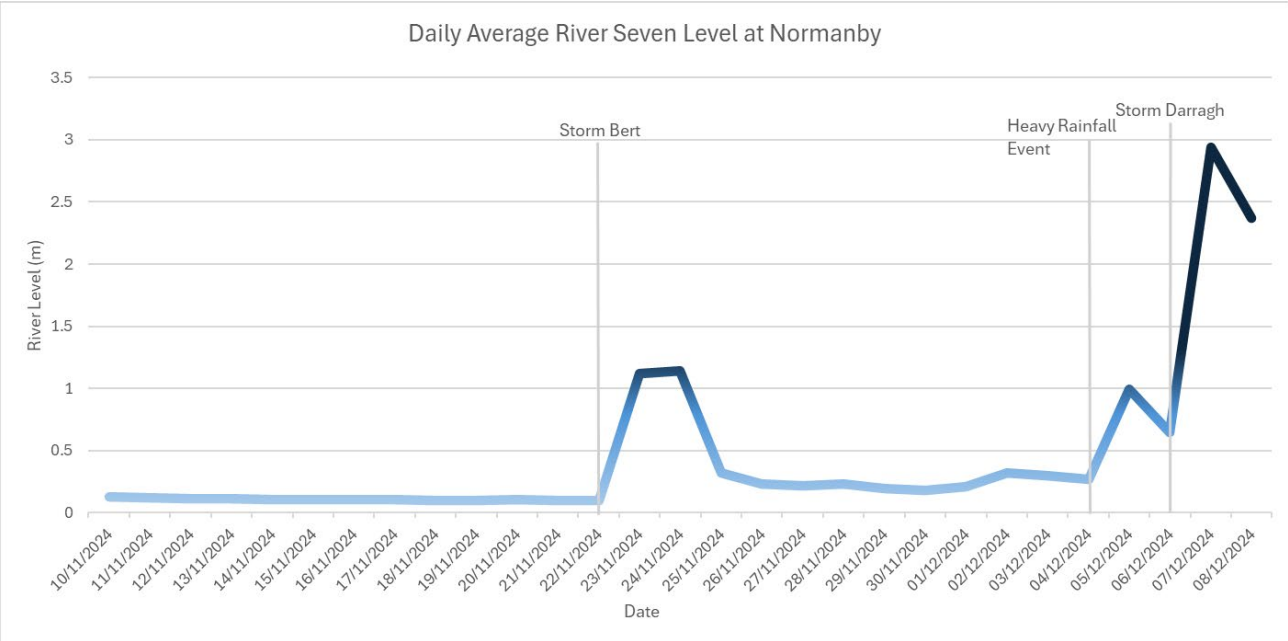


Figure 11 Daily Average River Seven level at Normanby

In general, both rivers responded with similar peaks to Storm Bert, with the rising limb in both cases rising at a similar rate to the heavy rainfall event on the 5th December. Two weeks of intermittent yet heavy rainfall kept the river levels higher than the rivers average base level. Prior to Storm Darragh, neither river level had fallen substantially to the pre 1 in 5 rainfall event levels.

12.1. River Level and Rainfall Discussion

Yorkshire Water's rainfall data was derived from radar observations rather than local in situ measurements. This introduces a degree of uncertainty, as radar-based estimates can differ from ground-based recordings, particularly in complex terrain or during intense storm events.

The Church Houses rain gauge, operated by the Environment Agency, displayed a data quality flag indicating incomplete records during the event. When compared with radar data presented in Section 10.1, it is possible that actual rainfall totals were higher than those recorded by the gauge, this is because the track of a storm can affect how much of the gauges pick up depending on their relative location to the heaviest rainfall. Radar estimates suggest that between 60 mm and 75 mm of rainfall may have occurred in the upper catchments of the Rivers Dove and Seven.

Environment Agency river level data can occasionally be affected by inaccuracies, particularly when river levels exceed bank full conditions, this overtopping can cause a weird effect near monitoring stations. These conditions can interfere with the accuracy of level recordings and should be considered when interpreting peak values.

During Storm Darragh, significant river level records were broken. On 8 December 2024, the River Dove at Kirkby Mills reached a new peak of 2.454 metres, surpassing the previous record of 2.451 metres. Similarly, the River Seven at Sinnington recorded a new high of 2.614 metres on 7 December

2024, exceeding the previous record of 2.595 metres. The hydrograph for this event showed a sharp rising limb, indicative of rapid runoff and intense rainfall.

Prior rainfall events had elevated baseline river levels, and ground conditions were saturated at the time of Storm Darragh. These factors contributed to increased runoff rates and reduced infiltration capacity. Notably, the storm system approached from the north, directing rainfall consistently into the upper catchments of the Rivers Dove and Seven. This contrasts with typical westerly storm tracks, which tend to distribute rainfall more evenly across multiple catchments. The northerly trajectory of Storm Darragh resulted in concentrated rainfall over the Rye catchment, exacerbating flood conditions.

13. Response to Storm Darragh

13.1. Initial

During the response to Storm Darragh, the Resilience and Emergencies Team (RET) deployed Bronze Commanders to liaise with the Emergency Services and a rest centre was opened in cooperation with the Town Council at the Moorside Room for people who had to leave their homes. Again, with help from the Town Council, RET helped co-ordinate the recovery for local residents by opening a Local Assistance Centre (LAC) also at the Moorside Room, where a number of North Yorkshire Council teams based themselves for over 2 weeks. These NYC teams included RET, Social Care, Housing, Highways, Localities, Stronger Communities, Flood Risk Management, and the Major Incident Response Team (MIRT) who were able to give welfare and trauma support. With help from volunteer groups who also based themselves at the LAC, the council provided skips and helped residents with furniture and carpet removal from flooded properties as well as help with insurance claims and general flood advice. Everyone worked very closely with partners such as Northern PowerGrid and the Environment Agency and NYC helped to facilitate several grants awarded by Two Ridings and continued to make welfare checks long after the LAC closed.

Following the immediate emergency response to flooding caused by Storm Darragh, the Flood Risk Management team conducted site visits to affected areas. These visits focused on gathering evidence of flooding impacts and engaging with residents to provide information and invite them to dedicated drop-in sessions scheduled for January 2024.

In Marton, the Environment Agency carried out temporary embankment repairs in December after a tree was uprooted, compromising the bank's integrity. A full repair is required to ensure long-term resilience, this has been bid for by the Environment Agency. In addition, tree clearance operations have been ongoing to reduce future flood risk and improve access for maintenance.

13.2. Medium Term

The Resilience and Emergencies Team is actively working with parish councils across the catchment to strengthen local flood preparedness. This includes supporting the development of community

emergency plans, identifying key local risks, and ensuring that residents are aware of response procedures during flood events.

A Property Flood Resilience (PFR) scheme is underway to support residents in Keldholme, Kirkby Mills, and Sinnington. Initial surveys are complete, with installation surveys ongoing. The scheme is funded by North Yorkshire Council, Grant in Aid, and Local Levy, and will deliver tailored resilience measures to reduce property-level flood risk and improve recovery. Progress is being monitored, and residents are being kept informed throughout delivery.

The Environment Agency started a Natural Flood Management project in 2023 in partnership with Yorkshire Wildlife Trust and the Derwent Catchment Partnership. It aims to deliver 11,000m³ of water storage across the 59km² catchment, reducing flood risk to 12 properties in Kirkby Mills.

Measures include leaky barriers, ponds, scrapes, planting, buffer strips, and floodplain reconnection. A key 17-hectare site at Grouse Hall performed effectively during Storm Darragh by storing and slowing a large volume of water that could have made its way downstream. The project also improves 9 hectares of habitat and 5km of watercourse, with additional funding secured for wider environmental benefits. Completion is expected within the current financial year.

13.3. Long term

The long-term response will be guided by the recommendations within this report.

14. Flooding Consequences and mechanisms /Impact of flooding

14.1. Summary

The Lead Local Flood Authority collected data on the impacts of flooding in the following ways; discussions with locals on village walk throughs, flood risk questionnaires submitted by locals, discussions with local residents during the 3 drop in sessions, email correspondence and Section 14 data requests of involved Risk Management Authorities (Yorkshire Water, Environment Agency, NYC Highways, NYC Bridges and NYC Resilience and Emergency team).

In total 87 properties flooded internally or suffered near misses. The properties that suffered near misses, only did so by defending their properties with sandbags, existing property level resilience (flood gates for example) and makeshift defences. The Fire Brigade were called out to a report of a vehicle stuck in flood water in Marton and to redirect water via pump in Kirkby Mills.

14.2. Kirkby Mills

A total of 21 records of internal flooding and near-miss events were reported in Kirkby Mills during the incident. The Environment Agency notes that an alert was issued at 16:00 and the warning at 21:26. According to residents, a flood alert was issued at approximately 20:25, with river water entering properties around 21:00.

Surface water flows were observed travelling from Kirkbymoorside towards Kirkby Mills along the A170 and the access road to Kirkby Mills and Keldholme. These flows accumulated in a topographical low point on Kirkby Mills Road, adjacent to the access road to The Cornmill. In this

location, three highway gullies were reported to have surcharged. Residents raised concerns regarding the quantity of surface water runoff they witnessed coming from Swineherd Lane, past the Cricket Ground and into Kirkby Mills, with several residents stating the quantity of surface water during Storm Darragh was more than had been witnessed recently. North Yorkshire Council Highways noted in their Section 14 response that the gullies in this area are cleaned annually and were last cleaned due to a response to Storm Darragh on 23/12/2024.

To the south of the A170, the first property was reported to have flooded at approximately 16:00 due to an overtopping of the Mill Race. This property is situated within a local topographical low spot. Additional properties in the area were affected by flooding from the front, attributed to a combination of water pumped from the north of the A170, surface water runoff from the A170 itself, and river water that had escaped through gaps between properties.

Yorkshire Water reported telemetry data indicating a power failure at their pumping station south of Kirkby Mills at 17:22, with a second failure occurring at 23:11. The latter event also affected the backup system. During pump failure, excess water was diverted to the River Dove via an overflow pipe. Yorkshire Water have noted that this pipe has a low outfall elevation. At 23:11, river levels were recorded at approximately 2.4 metres, likely submerging the outfall and causing surcharge in the vicinity of the pumping station.

Discussions with residents and Yorkshire Water identified a potential hydraulic restriction on the Mill Race caused by a Yorkshire Water Combined Sewer Overflow (CSO) pipe, which crosses in front of a small bridge over the Mill Race. Residents noted seeing water overtop at this location. This pipe may affect conveyance, however, the Dove will have been high and backing up the Mill Race, therefore water would be backing out of channel, nonetheless. A report from the North Yorkshire Council Bridges Team also indicated the presence of silt at this bridge. These two factors may have contributed to a reduction in channel capacity at this location, however, the impact would have small on the overall flooding.

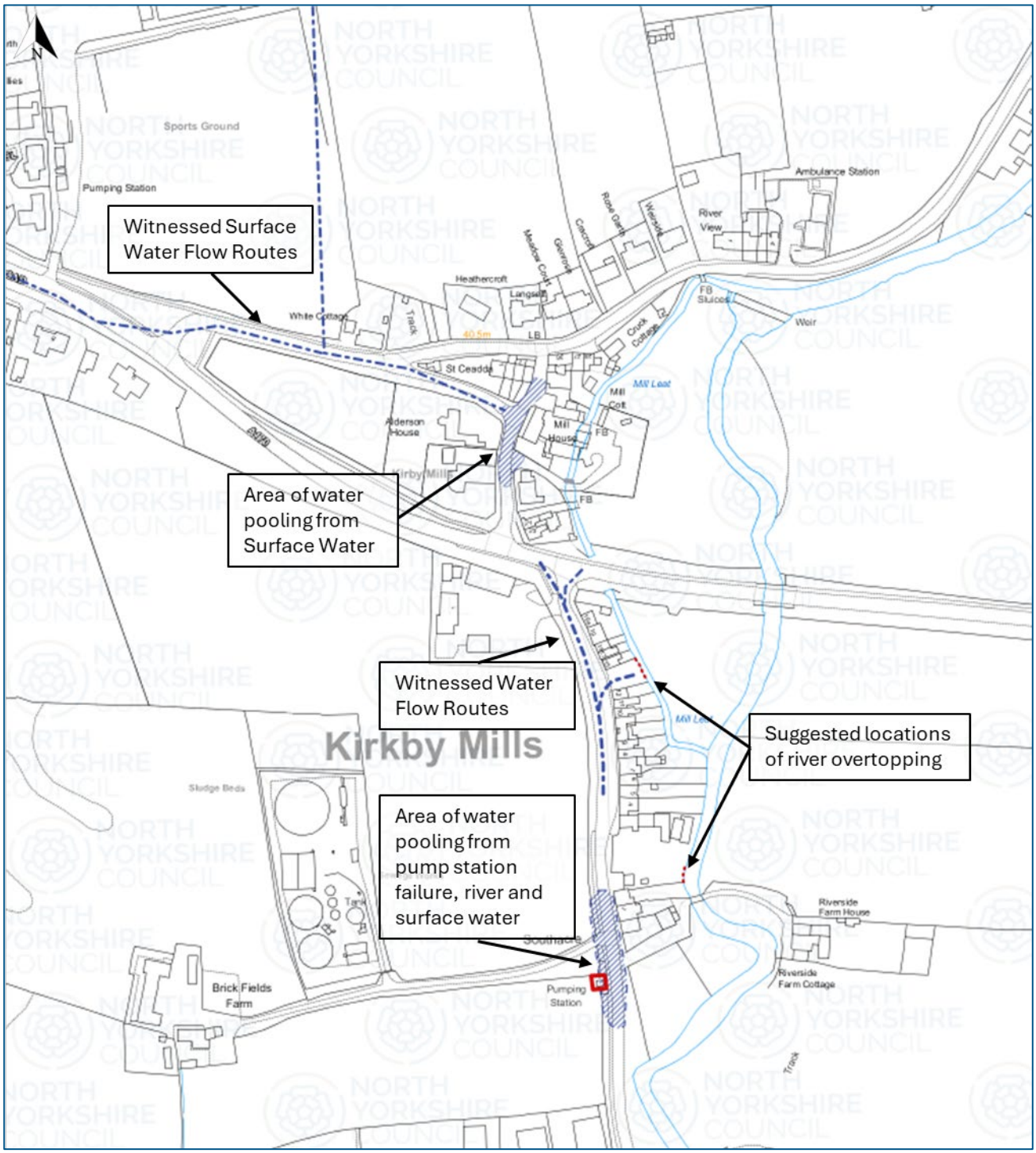


Figure 12 Map detailing observed events in Kirkby Mills

14.3. Keldholme

Eight residential properties in Keldholme were reported to have experienced internal flooding during Storm Darragh. Residents indicated that a flood alert was received at approximately 17:00, followed by a flood warning at around 22:00. The River Dove was observed overtopping its banks between 22:00 and 23:15, with internal property flooding following shortly after. Additionally, surface water was witnessed collecting on the highway at approximately 19:30.

Concerns were raised by residents regarding the condition of Keldholme Bridge and the potential impact of silt accumulation. A review of North Yorkshire Council Highways Bridge inspection reports confirmed that there has been no recorded increase in silt levels over the past six years. Each bridge in the area is subject to inspection on a biennial basis.

Further concerns were expressed regarding surface water flows originating from the north and east of Keldholme, as identified in figure 13. The North Yorkshire Council Highways has acknowledged awareness of flows from the east. Funding is being sought to investigate the issue and where possible, remediate.

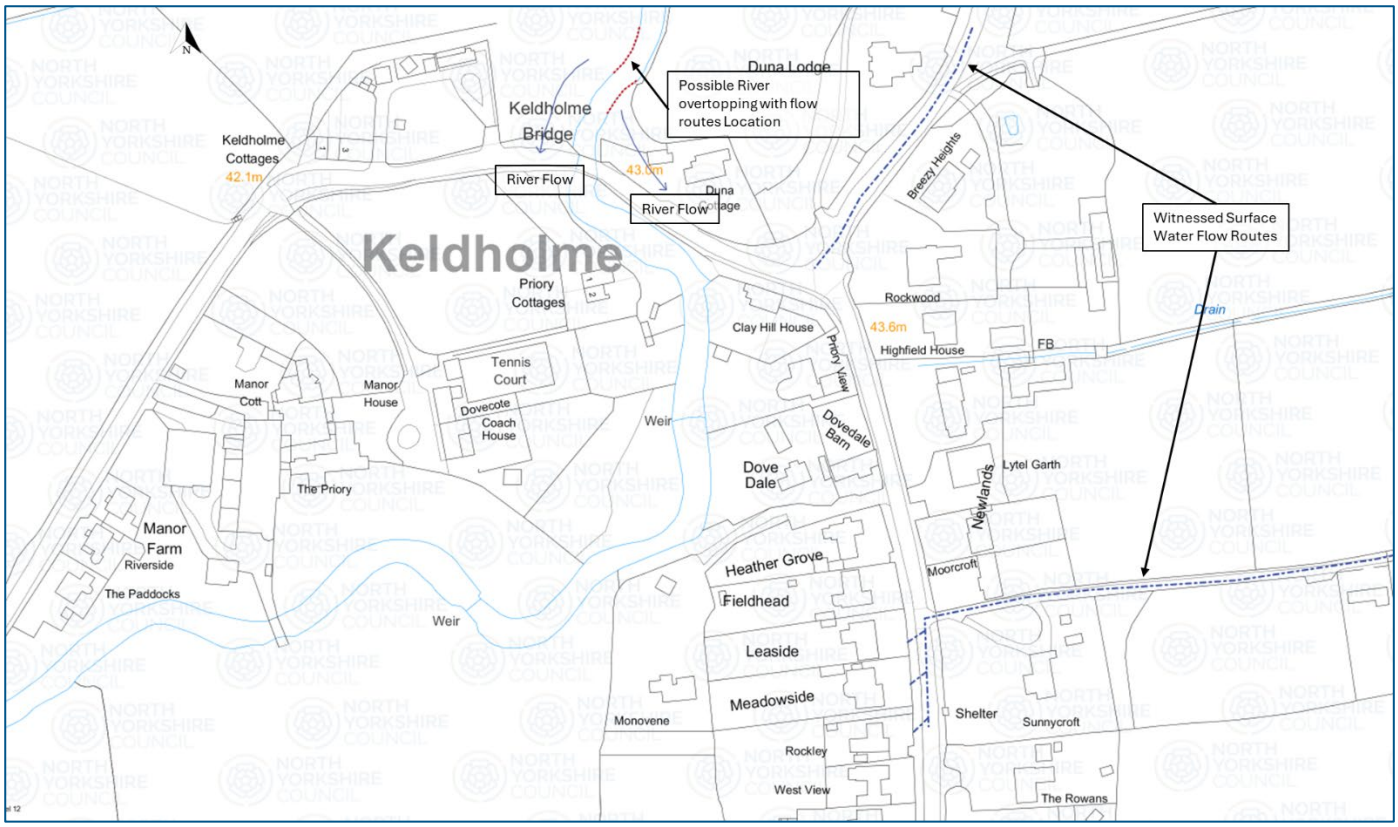


Figure 13 Map detailing observed events in Keldholme

14.4. Sinnington

A total of 21 flood incidents were reported, of which 19 involved internal property flooding. The local community demonstrated strong communication and cooperation, with residents assisting one another in preparing for the event. Many properties avoided internal flooding through the use of improvised flood defences, including sandbags, towels and boards.

The initial overtopping of the River Seven was observed at approximately 17:30 along Main Street. A resident reported a flood warning, followed by a flood alert reported by residents at 19:30. The Lead Local Flood Authority noted that many residents in Sinnington were not signed up to the Environment Agency flood warning system, or reported that they did not receive appropriate

warnings. Residents reported internal flooding between 22:00 and 23:00, with most of the properties flooded from the front by water from the River Seven.

The flood water travelled down Main Street, before being channelled through a gap in houses on the west, before rejoining the River Seven. Some residents raised concerns regarding tree blockages in the river channel, the Environment Agency have stated in their Section 14 response that the field team have cleared trees and blockages in the area.

The local pub, situated on higher ground, served as a refuge for some residents and visitors, who relocated vehicles to its car park and sought shelter there. A handful of residents noted that a tractor transported individuals through floodwaters from the pub down Main Street at a speed sufficient to generate a bow wave, which contributed to flooding at nearby residential properties.

The River Seven also overtopped towards the south of the village. There's a parcel of land adjacent to the watercourse that acts as location where excess river water is stored when the Seven overtops. Site observations indicated that this parcel of land did hold some water back, however, over time the level of the parcel of land has increased. The Environment Agency plan to survey this land to see whether lowering the level would provide some resilience benefits, this is in conjunction with the land owner.

A frequent issue raised by residents was the quantity and frequency of surface water travelling down to Sinnington from the gently sloping land to the east. The watercourse Double Dike is partially culverted, and therefore does not capture surface water flows in that location. Surface water flows accumulate and travel towards properties, contributing to one known reported incident of internal flooding, and several cases of garden flooding. Some of these flows then fall into the open sections of double dike, before out falling into the River Seven at the south of the village. Engagement with landowners has begun involving Natural England, Environment Agency and NYC. The aim of this engagement is to explore opportunities for reducing surface water runoff from adjacent farmland, potentially through modifications to farming practices and improvements to watercourse management.

Concerns were raised by residents regarding the condition of Sinnington Bridge and the potential impact of silt accumulation. A review of North Yorkshire Council Highways Bridge inspection reports confirmed that there has been no recorded increase in silt levels over the past six years. Each bridge in the area is subject to inspection on a biennial basis.

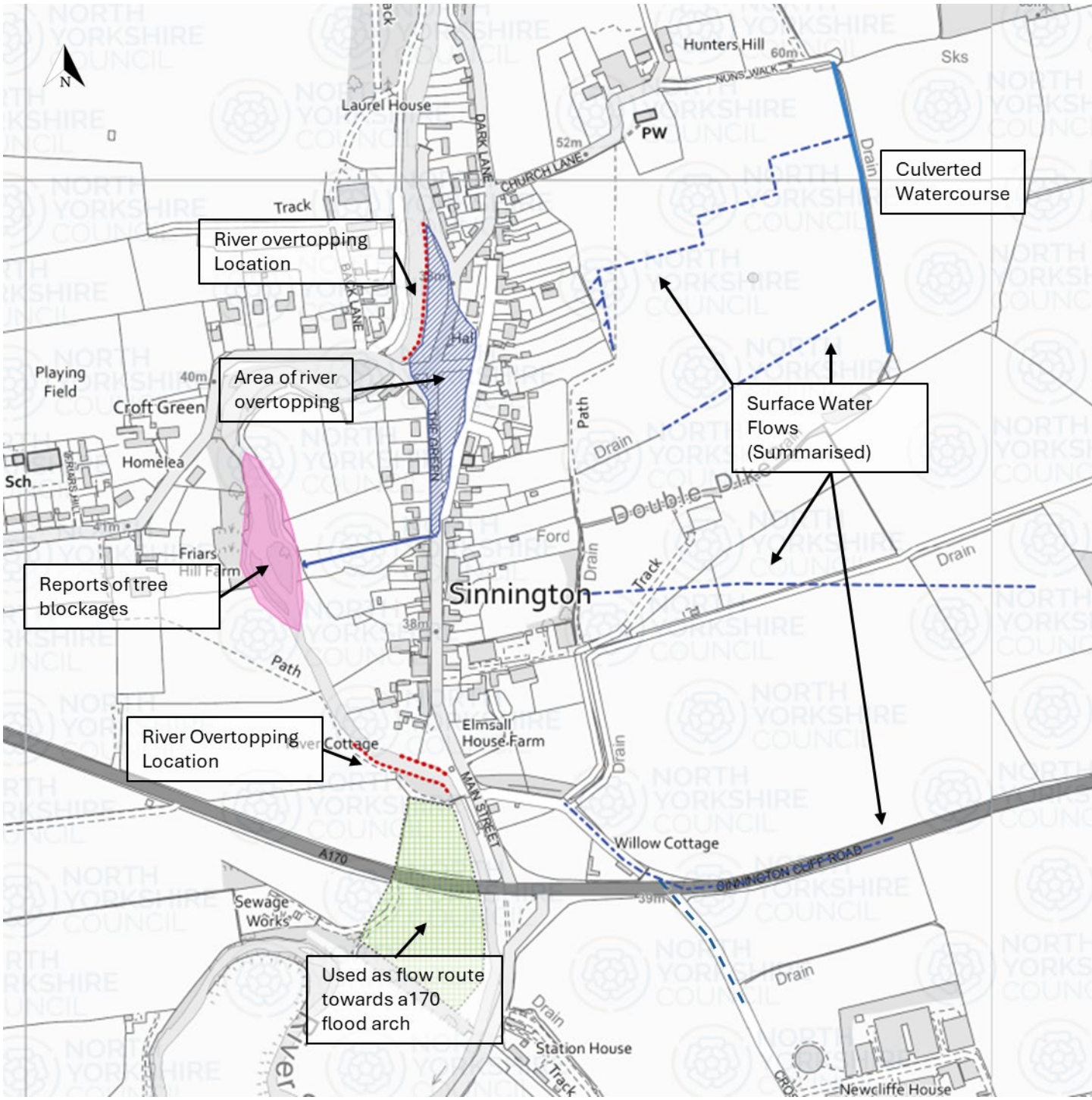


Figure 14 Map detailing observed events in Sinnington

14.5. Marton

Lead Local Flood Authority have 24 records of flooding in Marton, with 20 of these being internal flooding. Marton is partially defended by flood embankments, which stop at the northerly residential extent of the village. During Storm Darragh, the river level was high but was constrained by flood defences until early in the morning of the 8th December. To the north of Marton, where the flood defences are absent, water accumulates in the field as part of the natural flood plain. According to

residents, the field normally floods and water exits a gate adjacent to Back Lane and travels down Back Lane before re-entering the watercourse to the south of the village. Prior to Storm Darragh, the field had recently been worked and was covered in loose vegetation. From the image below, it is apparent flood water mobilised the loose vegetation, which in turn blocked the gate, causing the water to further rise within the field.

Figure 15 Photo of gate with vegetation blockage in Marton

At some time after 01:00, the water level rose to a height that caused it to find a different flow route nearer the village side of Marton Road, causing the flood waters to travel into the village. At a similar time, near to Marton Bridge, two trees were blown down. Unfortunately, one of the trees was located within the flood bank, which went on to cause a 7m wide breach of the flood bank. This caused flood water to damage a house and continue to spill into Marton Road near the bridge. Reports state that flooding along Marton Road reached around 1m in height. The high level of flood water in the village was further pushed into houses on the south of Marton Road by the northerly wind.

The residents raised concerns regarding whether the unusual northerly wind from Storm Darragh may have been a factor that caused the trees to fall. Trees do develop mechanical adaptations over time in response to prevailing wind directions. This process is called thigmomorphogenesis, where trees strengthen their structure (especially root anchorage and stem flexibility) in response to regular

mechanical stress like wind. However, there could also have been several other biotic and abiotic factors at play, like saturated soil or riverbank erosion, or root or trunk damage caused by fungi, or low vitality caused by pests & disease.

It is noted that Yorkshire Water are in the process of separating out the surface water from the combined sewer system, by adding water butts to properties and re-piping the parts of the system to the surface water sewer. The surface water sewer outfalls to the River Seven by Marton Bridge with a flap valve. Yorkshire Water do have concerns that some land drains are connected to the system, which could also be increasing the backlog of water seen in Storm Darragh. However, it is noted Yorkshire Water will investigate the system via CCTV survey to identify any incorrect connections.

The Environment Agency performed a temporary repair of the embankment on the 23rd December 2024 and planned to remove the second tree fallen in April/May. They also carried out tree and blockage work between Marton and Normanby in February 2025.

From site walkovers, and discussions with the Environment Agency and residents, it is clear that the state of the flood banks is in variable condition, such as variable defence height, some defences being built on and vegetation growth within the banks. These factors could be flood risk factors, however, in this case the tree falling and causing a breach of the flood embankment was an important factor, as the defences themselves were never observed or recorded as overtopping. It was fortuitous that the breach did not occur earlier in the night, when the river peaked at 22:30.

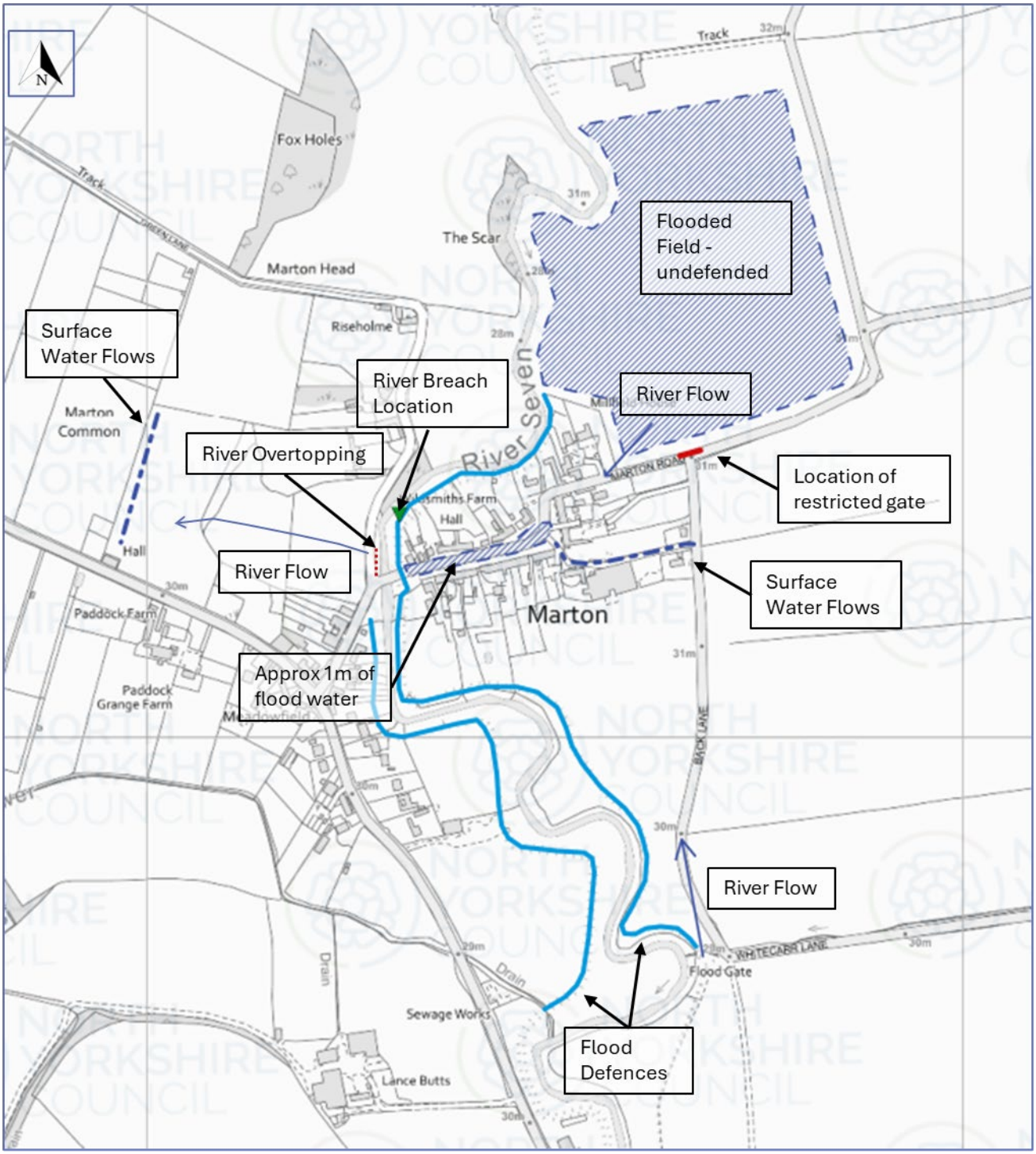


Figure 16 Map detailing observed events in Marton

15. Recommendations

The following recommendations are made in accordance with the North Yorkshire Council Flood Risk Strategy and have been created from the conclusions of this report:

General:

1) The LLFA to continue to deliver the existing property flood resilience scheme that will benefit properties in Keldholme, Kirkby Mills and Sinnington.
2) All risk management authorities to continue responsive engagement and service within the villages.
3) Environment Agency to continue engagement and increase education regarding the flood warning system and landowner and homeowner responsibilities.

Kirkby Mills:

1) North Yorkshire Council Highways and Yorkshire Water to jointly investigate the drainage system north of the A170, focusing on interactions between the Yorkshire Water network, highway gullies, and the river near the Mill, and assess the potential benefit of installing a non-return valve at the outfall.
2) North Yorkshire Council Bridges team and landowners to de-silt and regularly monitor the bridge to maintain flow capacity and reduce flood risk.
3) Yorkshire Water to assess how the Combined Sewer Overflow affects river channel capacity and contributes to flood risk.
4) Yorkshire Water to investigate power failure of pumping station and configure plan to avoid it happening in the future Environment Agency to engage riparian landowners to raise awareness of their responsibilities and take enforcement action on unconsented works, including the weir and Mill Race.

Keldholme:

1) North Yorkshire Council Bridges as part of Local Highway Authority to continue to monitor silt levels under Keldholme Bridge.
2) North Yorkshire Council as Local Highway Authority and LLFA to explore opportunities reduce Surface Water flow impacts on the Highway from the East.

Sinnington:

1) North Yorkshire Council to work with landowners on riparian responsibility and engage in the education of surface water flow management.
2) North Yorkshire Council to explore maintaining the existing flow pathway on Main Street at Land Adjacent to Riverdell is maintained in the event of any future proposals to develop the land.
3) North Yorkshire Council Resilience and Emergencies Team to assist in setting up a community action group with the assistance of Sinnington Parish Council.

4) Environment Agency to investigate land levels on the right bank upstream of the A170 to assess whether any reinstatement of the flow path is required.

Marton:

1) Environment Agency to review flood defence and tree management regime, work with landowners on educating riparian responsibility and undertake enforcement where needed.
2) Environment Agency to submit funding bids to further repair the breach and carry out other maintenance of the flood embankments and river channel where a business case for investment can be made and where funding is available. This includes bank surveys to assess for low spots, embankment repairs and tree and vegetation clearance to aid conveyance.
3) Yorkshire Water to demonstrate how separating out the surface water from the Combined system won't increase surface water flood risk if the river level is high and reduce bad connections as an output of the CCTV survey.
4) North Yorkshire Council Resilience and Emergencies Team to help set up a community action group with the assistance of Marton Parish.

16. Appendices

11.1 Useful contacts and links

1) Flood Forecasting Centre

The Flood Forecasting Centre (FFC) is a partnership between the Environment Agency and the Met Office, combining our meteorology and hydrology expertise into a specialised hydrometeorology service. The centre forecasts for all natural forms of flooding - river, surface water, tidal/coastal and groundwater.

Flood Forecasting Centre - GOV.UK

2) Online Flood Risk Mapping

This service uses computer models to assess an area's long term flood risk from rivers, the sea, surface water and some groundwater.

https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

3) National Flood Forum

A charity to help, support and represent people at risk of flooding.

https://nationalfloodforum.org.uk/

4) North Yorkshire Local Resilience Forum

NYLRF is a partnership of local agencies working together to prepare for, respond to and recover from potential major incidents and emergencies via the duties stated in the Civil Contingencies Act 2004 (CCA).

http://www.emergencynorthyorks.gov.uk/

5) NYC Resilience & Emergencies Unit

The resilience and emergencies unit is responsible for planning for a wide variety of potential incidents and emergencies that could affect the population of North Yorkshire.

https://www.northyorks.gov.uk/resilience-and-emergencies-unit

6) NYC Flood & Water Management

As lead local flood authority, we investigate and assess flood risks, including flooding from surface water, groundwater and existing watercourses. We work with partners involved in flood and water management to protect communities from the impact of flooding.

https://www.northyorks.gov.uk/flood-and-water-management

Initial equality impact assessment screening form **This form records a equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.**	
Directorate	Environment
Service area	Highways and Transportation
Proposal being screened	Section 19 Investigation Report on the 7th December 2024 Flood Event in the Rye Villages of Kirkby Mills, Keldholme, Sinnington and Marton
Officer(s) carrying out screening	Heather Lagan
What are you proposing to do?	That North Yorkshire Council, in its capacity as Lead Local Flood Authority publishes a formal report on the events of 7th December 2024 Flood Event in the Rye Villages of Kirkby Mills, Keldholme, Sinnington and Marton, examining the action taken by risk management authorities following the flood events
Why are you proposing this? What are the desired outcomes?	North Yorkshire Council has a statutory duty to investigate flood events, bestowed by the Flood and Water Management Act (2010). The NY Flood Risk Strategy determines the criteria for undertaking and publishing a formal investigation under the FWMA (2010), and the 7th December 2024 flood event justifies this action according to the criteria
Does the proposal involve a significant commitment or removal of resources? Please give details.	There is no financial implication arising from the publication of the report

Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYC's additional agreed characteristics

As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be an adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your directorate representative for advice if you are in any doubt.

Protected characteristic	**Potential for adverse impact**		**Don't know/No info available**
	Yes	**No**	
Age		No	
Disability		No	
Sex		No	
Race		No	
Sexual orientation		No	
Gender reassignment		No	
Religion or belief		No	
Pregnancy or maternity		No	
Marriage or civil partnership		No	

People in rural areas		No		
People on a low income		No		
Carer (unpaid family or friend)		No		
Are from the Armed Forces Community		No		
Does the proposal relate to an area where there are known inequalities/probable impacts (for example, disabled people's access to public transport)? Please give details.	No			
Will the proposal have a significant effect on how other organisations operate? (for example, partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	**No**			
Decision (Please tick one option)	EIA not relevant or proportionate:	ü	Continue to full EIA:	
Reason for decision	The content of the flood investigation reports is technical in nature, and therefore does not have the ability to impact differently upon any protected characteristics. Any action which may arise from the event similarly relates to the physicality of the location and its associated flood risk, rather than being a decision which may be accessed differently or would have different implications depending on any protected characteristics an individual may have.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	11/12/2025			

Initial Climate Change Impact Assessment

The intention of this document is to help the council to gain an initial understanding of the impact of a project or decision on the environment. This document should be completed in consultation with the supporting guidance. Dependent on this initial assessment you may need to go on to complete a full Climate Change Impact Assessment. The final document will be published as part of the decision-making process.
If you have any additional queries, which are not covered by the guidance please email climatechange@northyorks.gov.uk

Title of proposal	Section 19 Investigation Report on the 07 December 2024 affecting Kirkby Mills, Keldholme, Sinnington and Marton.
Brief description of proposal	That North Yorkshire Council, in its capacity as Lead Local Flood Authority publishes a formal report on the events on 07 December 2024 affecting Kirkby Mills, Keldholme, Sinnington and Marton, examining the action taken by risk management authorities following the flood events
Directorate	Environment
Service area	Highways and Transportation
Lead officer	Heather Lagan
Names and roles of other people involved in carrying out the impact assessment	John Ward-Campbell

The chart below contains the main environmental factors to consider in your initial assessment – choose the appropriate option from the drop-down list for each one.

Remember to think about the following.

- Travel
- Construction
- Data storage
- Use of buildings
- Change of land use
- Opportunities for recycling and reuse

Environmental factor to consider	For the council	For the county	Overall
Greenhouse gas emissions	No effect on emissions	No Effect on emissions	No effect on emissions
Waste	No effect on waste	No effect on waste	No effect on waste
Water use	No effect on water usage	No effect on water usage	No effect on water usage
Pollution (air, land, water, noise, light)	No effect on pollution	No effect on pollution	No effect on pollution
Resilience to adverse weather/climate events (flooding, drought etc)	Increases resilience	Increases resilience	Increases resilience
Ecological effects (biodiversity, loss of habitat etc)	No effect on ecology	No effect on ecology	No effect on ecology
Heritage and landscape	No effect on heritage and landscape	No effect on heritage and landscape	No effect on heritage and landscape

If any of these factors are likely to result in a negative or positive environmental impact, then a full climate change impact assessment will be required. It is important that we capture information about both positive and negative impacts to aid the council in calculating its carbon footprint and environmental impact.

Decision (Please tick one option)	Full CCIA not relevant or proportionate:	x	Continue to full CCIA:	
Reason for decision	This is a statutory duty that is placed on NYC. The report provides a factual narrative of the events of 07 December 2024. Each of the recommendations will require further assessment when the scope and brief of each recommendation is understood at the time of implementation.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	11/12/2025			

FLOOD INVESTIGATION REPORT

Storm Darragh Flooding on Rye Tributaries December 2024

Report Issued December 2025

Acknowledgements:

North Yorkshire Lead Local Flood Authority Team would like to thank the following for their cooperation and assistance in this investigation:

Local residents for their knowledge and assistance

Yorkshire Water Services Ltd

The Environment Agency

North Yorkshire Council Highways Department

North Yorkshire Council Bridges Team

North Yorkshire Council Resilience & Emergencies Team

North Yorkshire Council Major Incident Response Team

Report Author

Heather Lagan MSc
Senior Flood Risk Engineer, Lead Local Flood Authority, North Yorkshire Council

Hannah Baker BSc(Hons)
Flood Risk Project Manager, Lead Local Flood Authority, North Yorkshire Council

Emily Andre BSc(Hons)
Flood Risk Engineer, Lead Local Flood Authority, North Yorkshire Council

Copyright

Records of the public sewer system included are a facsimile of the statutory record provided by Yorkshire Water Services Ltd (YWSL). For the purposes of this report minor sewers and other non-relevant data have been omitted from the plans for clarity.

Contents

1. Executive Summary

On the 7th of December 2024, as a result of Storm Darragh over 87 properties were affected by flooding, with 81 experiencing internal flooding across the River Rye catchment. Storm Darragh brought intense rainfall and damaging winds across the UK and Europe, resulting in significant flooding across North Yorkshire. This report focuses on the communities of Kirkby Mills, Keldholme, Sinnington, and Marton.

The report draws on the best available data, including hydrological records and resident accounts, to assess flood risk and response. Analysis shows that while local rainfall totals were moderate (15–16 mm), saturated ground conditions and intense upstream rainfall (up to 80 mm) led to rapid runoff and high river levels. River level records were broken at Kirkby Mills and Sinnington, with the River Dove peaking at 2.454 m and the River Seven at 2.614 m.

Each village experienced distinct flooding mechanisms:

- Kirkby Mills: Combined surface water and River Dove fluvial flooding, exacerbated by pumping station failure.
- Keldholme: River Dove overtopping and surface water accumulation, with concerns over highway drainage and surface water flows.
- Sinnington: River Seven overtopping, surface water runoff from surrounding land, and gaps in flood warning system uptake.
- Marton: Breach of flood defences due to tree uprooting, blocked field drainage, reduced channel maintenance from the Environment Agency, a build-up of wrack affecting overland flows, and wind-driven water movement.

Considerations have been made as to the condition and performance of local drainage networks, using data from North Yorkshire Council and Yorkshire Water to assess whether infrastructure issues contributed to the severity of flooding.

Emergency response efforts were swift and effective, with rest centres, welfare support, and coordinated recovery operations deployed across affected areas. Medium and long-term resilience measures are underway, including a Property Flood Resilience (PFR) scheme and a Natural Flood Management (NFM) project aimed at reducing overall flood risk to some communities.

This report provides a comprehensive account of the December 2024 flood event and makes several recommendations to improve future flood resilience across the River Rye catchment.

2. Scope/purpose of report

This document has been prepared specifically for the purpose of meeting the requirements of Section 19 of the Flood and Water Management Act 2010.

The purpose of this report is to investigate which Risk Management Authorities (RMAs) had relevant flood risk management functions during the flooding on 7th December 2024, and whether the relevant RMAs have exercised, or propose to exercise, their risk management functions (as per section 19(1)

of the Flood and Water Management Act 2010). It does not address wider issues beyond that remit. The report focusses on the flooding in Kirkby Mills, Keldholme, Sinnington, Marton, Nunnington, Pickering and surrounding areas, it does not extend to other parts of the district or county.

The supporting data has been put together based on reports of flooding from a variety of sources. Whilst every effort has been made to verify the locations that were flooded, the nature of the data and the methods used to collate this information mean that it does not include every occurrence of flooding. Private individual properties which flooded are not identified in this report. This data only identifies general areas where flooding has been reported to the Lead Local Flood Authority (LLFA) and is indicative only.

3. Flood and Water Management Act (2010)

In his review of the summer 2007 floods, Sir Michael Pitt recommended that local authorities should be given a duty to investigate flooding.

The Flood and Water Management Act 2010 (FWMA), defines the roles and responsibilities of 'Risk Management Authorities' and designates the unitary or upper tier authority for an area as Lead Local Flood Authority (LLFA).

The LLFA has responsibility for leading and co-ordinating local flood risk management. Local flood risk is defined as the risk of flooding from surface water runoff, groundwater and small ditches and watercourses (collectively known as ordinary watercourses). The responsibility to lead and co-ordinate the management of tidal and fluvial flood risk remains that of the Environment Agency (EA).

The Act also implements the recommendations made by Sir Michael Pitt that local authorities should have a duty to investigate flooding from all sources.

4. Section 19 Investigation Requirement

North Yorkshire Council, as LLFA, has a responsibility under Section 19 of the FWMA to investigate significant flood incidents in its area. Section 19 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.

Section 14 of the FWMA grants the LLFA power to request information associated with its functions. These powers have been exercised in the preparation of this report.

5. Trigger for Section 19 Report

The incident has been assessed in line with the criteria set out in Section 3 of the North Yorkshire County Council Local Flood Risk Strategy (2015) and has been judged to warrant a formal Section 19 investigation based on:

- The relationship with the functions of other Risk Management Authorities.
- Number of properties internally flooded.
- The depth, area or velocity of flooding reported.
- The nature and extent of critical infrastructure impacted by the flood.

6. Event background

6.1. Location of this investigation

This report investigates flooding incidents relating to Storm Darragh, on the 7th of December 2024, causing widespread wind damage, power outages and flooding across the UK and Europe. In North Yorkshire, the Lead Local Flood Authority (LLFA) were made aware of internal property flooding in Kirkby Mills, Keldholme, Sinnington, Marton, Nunnington and Pickering.

The flooding in Nunnington and Pickering involved an isolated number of properties, whilst equally devastating, this would not in isolation meet the trigger levels for a Section 19. Furthermore, looking at these locations in more detail would risk identifying individual properties. In accordance with section 3 of the North Yorkshire Local Flood Risk Strategy, all reported properties have been recorded and this report will therefore focus on the areas where significant levels of property flooding were reported to the council, these are: Kirkby Mills, Keldholme, Sinnington and Marton.

6.2. Kirkby Mills

Kirkby Mills (X: 470411, Y: 485945) is a small linear village roughly 0.7km east of Kirkbymoorside, with the A170 road running through the middle of Kirkby Mills. The River Dove flows to the east of Kirkby Mills, from the north in a southerly direction. Towards the north of Kirkby Mills, The Dove is split at a weir, into the Mill Race – a watercourse historically used by The Cornmill.

The etymology of Kirkby Mills likely comes from the Old Norse for “Church by the Mills”, with Kirk often relating to a place of worship.

LLFA records indicate that the drainage system in Kirkby Mills is a Yorkshire Water combined system. This combined system generally runs to the south, towards the Kirkbymoorside Waste Water Treatment Works. Yorkshire Water records note two Combined Storm Overflow outfalls in the River Dove, these both spilled in 2024, with Yorkshire Water noting this was due to “Hydraulic Capacity Issues”[1].

The local bedrock geology of Kirkby Mills is split between the north and the south. The north predominately comprises of the Upper Calcareous Grit Formation, of which sandstone is the most common constituent. To the south, the bedrock geology predominately comprises of the Ampthill

[1] https://theriverstrust.org/key-issues/sewage-in-rivers

Clay Formation and the Kimmeridge Clay Formation, generically formed of mudstone. Kirkby Mills has a layer of superficial deposits, comprising of Alluvium, clays, silts, sands and gravels, associated with The River Dove.

The annual rainfall from the nearest Met Office weather station, Fylingdales, is 979.68mm. [2]

6.3. Keldholme

Keldholme (X: 470958, Y: 486189) is a small village that is just to the northeast of Kirkby Mills. Grey Lane/Village Street runs from the north of Keldholme, connecting to the A170 to the south. The River Dove flows into Keldholme from the north, passing below Keldholme bridge, before bending towards the west 150m downstream of the bridge.

Keldholme is thought to be Scandinavian in origin, translating to island or river meadow near the spring. Historically, Keldholme was home to a Cistercian Nunnery named Keldholme Priory, which was situated on the northern bank of the River Dove in the west of Keldholme. Nothing remains of The Priory, save its namesake in some of the properties that exist on the site.

The foul water system in Keldholme appears to be primarily privately owned, with residents managing septic tanks. Yorkshire Water have no records of foul services in the area.

The local bedrock geology of Keldholme, is similar to Kirkby Mills as above.

The annual rainfall from the nearest Met Office weather station, Fylingdales, is 979.68mm.

6.4. Sinnington

Sinnington (X: 474428, Y: 485596) is a small linear village located approximately 3 miles to the east of Kirkbymoorside. The A170 connects the town to the wider highways network to the south of the village. The River Seven flows along the west of Sinnington, from north to south. At Sinnington Bridge, in the centre of Sinnington, The Seven meanders to the west, before continuing to flow towards the south.

The name Sinnington is likely derived from the name of the river the settlement resides on the banks of, such as farm or homestead on the Seven.

The drainage system in Sinnington appears to be a mix of Yorkshire Water foul, combined and private networks.

[2] Fylingdales Location-specific long-term averages

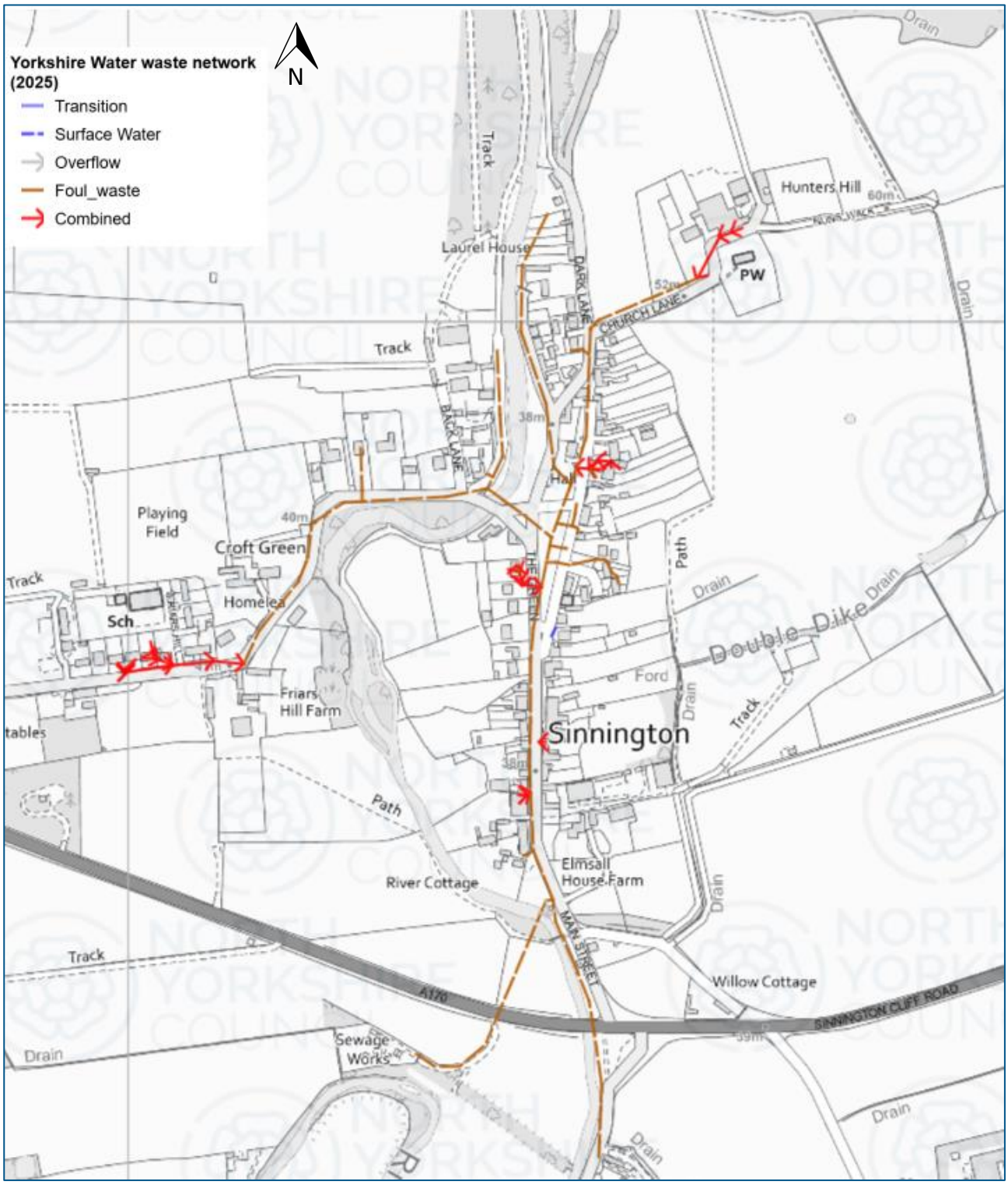


Figure 1 Yorkshire Water waste network map of Sinnington

The local bedrock geology of Sinnington predominately comprises of the Ampthill Clay Formation and the Kimmeridge Clay Formation, generically formed of mudstone. Sinnington has a layer of superficial deposits, comprising of Alluvium, clays, silts, sands and gravels, associated with The River Seven.

The annual rainfall from the nearest Met Office weather station, Fylingdales, is 979.68mm.

6.5. Marton

Marton (X: 473476, Y: 483241) is a small village approximately 2.87 miles to the southeast of Kirkbymoorside and 1.77 miles to the south of Sinnington.

Marton resides in a bend of the River Seven, which runs from the north of Marton, under Marton Bridge towards the south/southeast. Marton Bridge separates the east and west of Marton.

The local bedrock geology of Marton predominately comprises of the Ampthill Clay Formation and the Kimmeridge Clay Formation, generically formed of mudstone. Above this lies a superficial deposit of lacustrine deposits of clay, silt and sand.

The annual rainfall from the nearest Met Office weather station, High Mowthorpe, is 771.16mm[3].

7. History of flooding

A review has been undertaken of existing records of historical flooding including sources from, North Yorkshire Council Highways and Lead Local Flood Authority records, the Environment Agency's historic flood event outlines, historical newspaper records[4] and various correspondence from members of the public. The following flood history has been compiled from the information that has been made available to NYC.

It should be noted that the history of flooding is not exhaustive. North Yorkshire Council Lead Local Flood Authority team can only hold records when we are made aware of flooding.

7.1. History of flooding – River Dove

- July 1872 - Kirkby Mills: Streams rose 36 inches in a few minutes, causing significant flooding – York Herald
- July 1930 - Keldholme: Local properties flooded – Malton Messenger
- 1946 - Keldholme: Houses damaged by flooding with 3-4 ft of water – Yorkshire Post
- Autumn 2000 - Keldholme: Several properties flooded
- August 2002 - Kirkby Mills: Several properties flooded
- September 2008 - Kirkby Mills: Several properties flooded
- October 2020 - Kirkby Mills: Several properties flooded

7.2. History of flooding – River Seven

- May 1864 - Sinnington: Streams rose with unexampled rapidity carrying down trees and rocks – Yorkshire Gazette
- 1866 - Sinnington: Village flooded – Yorkshire Gazette
- 1866 - Marton: Water was 5ft deep in the village – Yorkshire Gazette

[3] High Mowthorpe Location-specific long-term averages
[4] https://www.jbatrust.org/wp-content/uploads/2020/09/Yorkshire-Rye-and-N-York-Moors.pdf

- Summer 1872 - Sinnington: Summer thunderstorms lead to many houses being flooded – York Herald
- August 1878 - Marton: All access to Marton suspended – York Herald
- November 1878 - Sinnington: Floodwater covered the village green – Malton Messenger
- September 1880 - Sinnington: Railway station was an island amongst floodwater, with some stating the flooding was worse than the 1878 flood event – Yorkshire Gazette
- June 1895 - Sinnington: The whole village was flooded from the Seven – Yorkshire Post
- September 1931 - Marton: Floodwater 10ft deep, in some places the flood water reached bedroom windows – Yorkshire Gazette
- September 1931 - Sinnington: The village was speedily inundated with many of the houses invaded by flood water. It is noted that all the records of flooding on the River Seven were broken – Yorkshire Gazette
- Autumn 2000 - Sinnington: Several properties flooded
- August 2002 - Sinnington: Around 10 homes were flooded and flood water cut off both ends of the village – York Press
- June 2007 - Sinnington: River Seven broke its banks, flooding the village – York Press and resident records
- June 2007 - Marton: Village was flooded with sandbags deployed – York Press
- September 2008 - Sinnington: The River Seven flooded homes with homeowners wading through three feet of water – York Press

7.3. Flooding summary

The River Dove and River Seven catchments have a long and well documented history of flooding, with events dating back to the 19th century and continuing into the 21st century. These flood events have repeatedly impacted communities including Keldholme, Kirkby Mills, Sinnington, and Marton, often causing significant property damage and disruption.

The most recent event occurred on the 7th December 2024, associated with Storm Darragh. This brought high rainfalls levels, resulting in both fluvial and surface water flooding.

8. Current understanding of flood risk

This section focuses on the perceived level of flood risk based on the current best available data and flood mapping.

The Rivers Dove and Seven run generally to the south from their sources in the North York Moors National Park. They both run into the River Rye, 4km apart from each other, which in turn joins the River Derwent 11km to the east. The difference in elevations between the northern steeper catchment and more southerly flatter catchment has a strong influence on the flood generating capacities of rivers. In the steeper north, rainfall will turn rapidly into surface runoff flowing quickly down into steep watercourses. Steeper river gradients and therefore higher flow velocities in the upper parts of the catchment also give greater erosive power to the rivers. In contrast the flat nature of the south of the catchment will generally mean that the onset of any flooding will be less rapid and flow velocities lower.

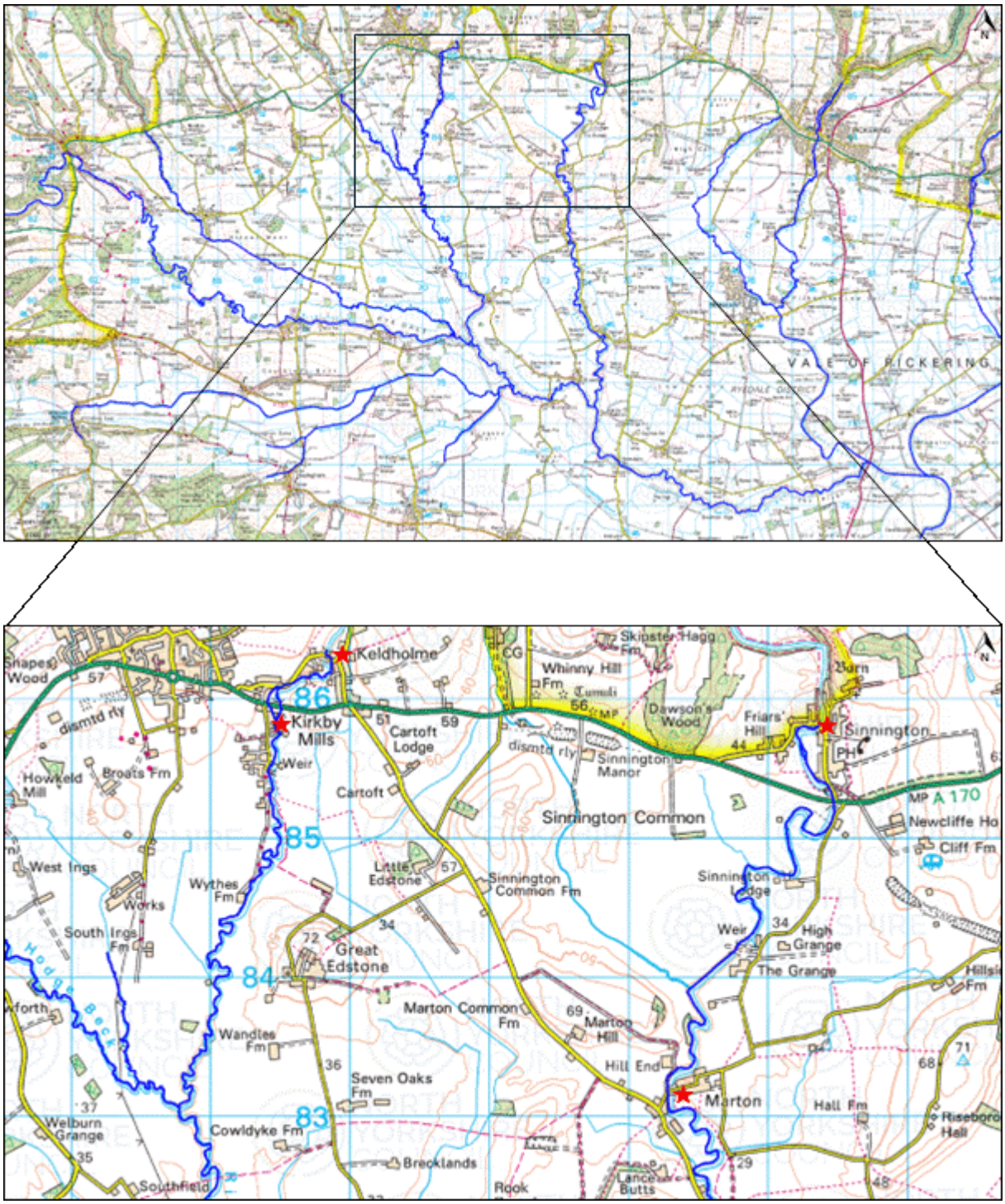


Figure 2 Fluvial map, showing the location of Keldholme, Kirkby Mills, Sinnington and Marton. Keldholme and Kirkby Mills are located on the River Dove and Sinnington and Marton are on the River Seven. Both rivers flow downstream to join the River Rye.

In general, Keldholme, Kirkby Mills and Sinnington are located on the “toe” of the North York Moors, on the transition between the steeper northern catchments and the flatter southern catchments. Due to the location of these villages, the rivers are likely to respond quickly to rainfall events higher up

the catchment. Marton is located South of Sinnington, with topographically high points of Marton Hill, Golden Hill and Riseborough Hill surrounding the village.

A review of the Scarborough Borough and Ryedale Level 1 Strategic Flood Risk Assessment (SFRA), November 2021 has been undertaken. In the SFRA the villages of Kirkby Mills, Keldholme, Sinnington and Marton were identified as having residential properties at risk of flooding.

Further information regarding the risk of flooding can be found on the publicly available Flood Map for planning[5]. The Flood Map for planning Flood Zones have been created by the Environment Agency to be used within the planning process as a starting point in determining how likely somewhere is to flood. There are 3 flood zones as defined by the Environment Agency for river flooding:

1) Flood Zone 1 – Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
2) Flood Zone 2 – Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
3) and Flood Zone 3 – Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)

The mapping is also generally limited to watercourses with a catchment area greater than 2km^2. This means that some of the smaller watercourses may not have an indicative flood extent recorded on the system.

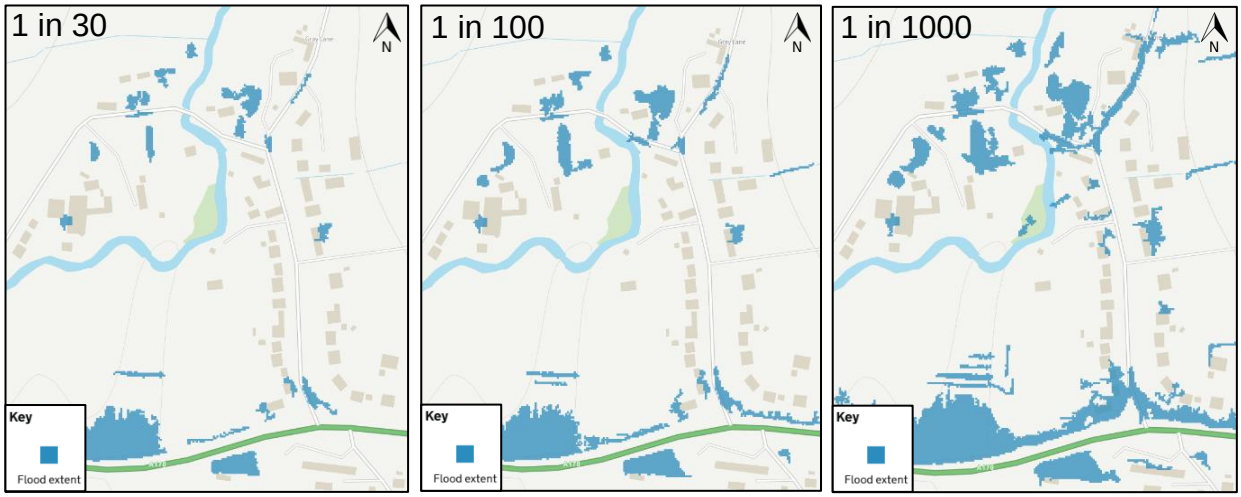
There are also 3 risk categories that breakdown the annual likelihood of surface water flooding:

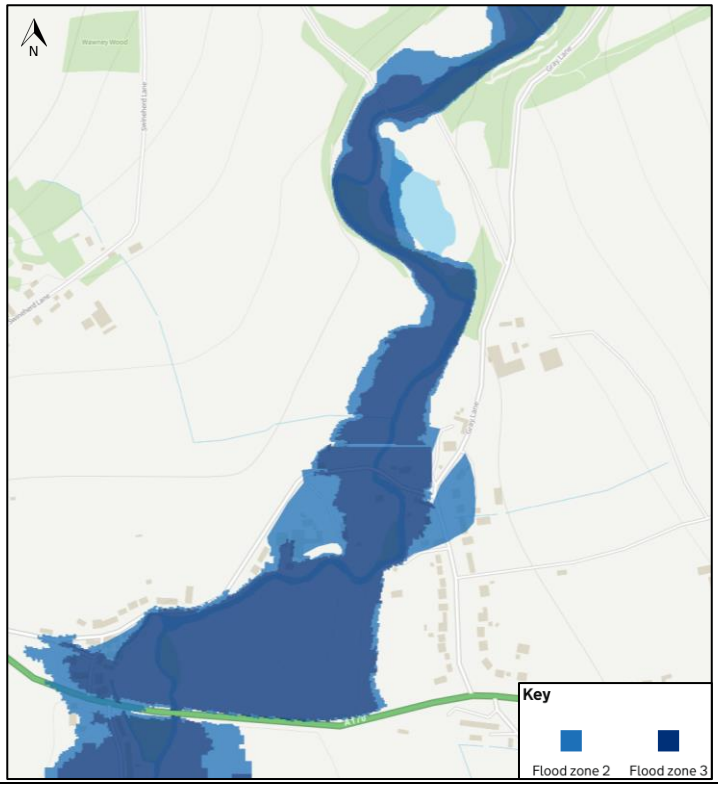
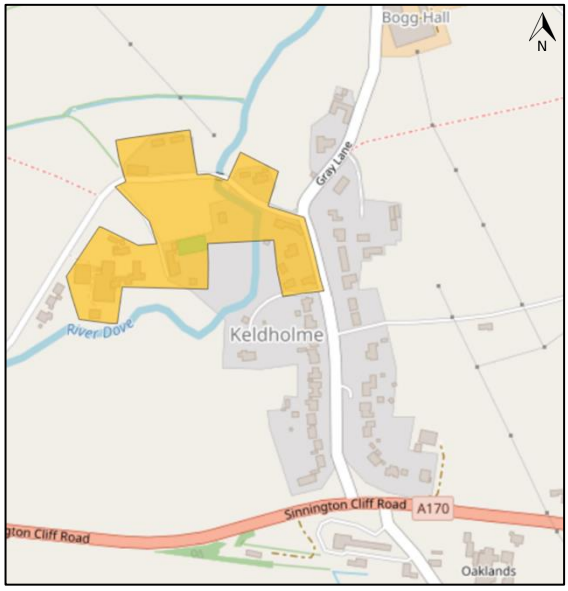
1) 1 in 30-year – (3.3%) chance of flooding each year
2) 1 in 100-year – (1%) chance of flooding each year
3) 1 in 1000-year – (0.1%) chance of flooding each year

These areas have been defined following a national scale modelling project for the Environment Agency and are regularly updated using recorded flood extents and local detailed modelling. The mapping is largely based on modelled data and the information it therefore provides is indicative of the expected flood extent. The information is not sufficiently detailed to demonstrate risk at individual property level, primarily because the Environment Agency do not hold details about properties and their door thresholds and floor levels. Properties with higher floor levels may not always face the same chance of flooding as the areas that surround them.

A mapped assessment of risk for each of the investigation areas are set out below.

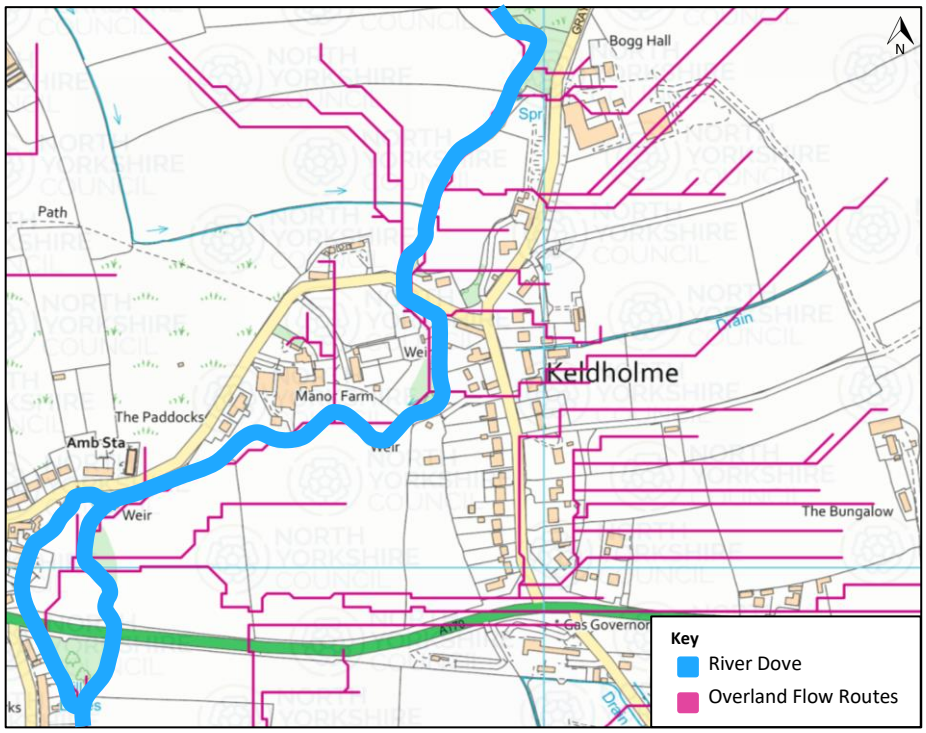
[5] https://flood-map-for-planning.service.gov.uk/location

	Assessment of Flood Risk
Keldholme Surface water risk	 While the overall risk of surface water flooding to Keldholme is relatively low, there are patches of high risk throughout the village. These are most notable in two sections of the village, to the south where Village Street meets the A170 and the northern end of the village. The south of Keldholme is the lowest point of the village, with multiple overland flow paths converging at this point. To the east there is risk of surface water flooding associated with overland flow routes. Surface water flooding risk is linked to the topography of the land and overland flow routes.

Keldholme Fluvial flood risk		The Government flood map for planning indicates that the west of Keldholme is in Flood zone 3, with some parts along Gray Lane and Village Street in Flood zone 2.
Keldholme Flood warning alert areas and known flood defences		A western section of Keldholme is included within a Flood Warning Area. The warning is known as "122FWF809 Properties on Dove Way, Kirkby Mills, and Keldholme". There are no known flood defences in Keldholme.

Keldholme

Overland flow Routes

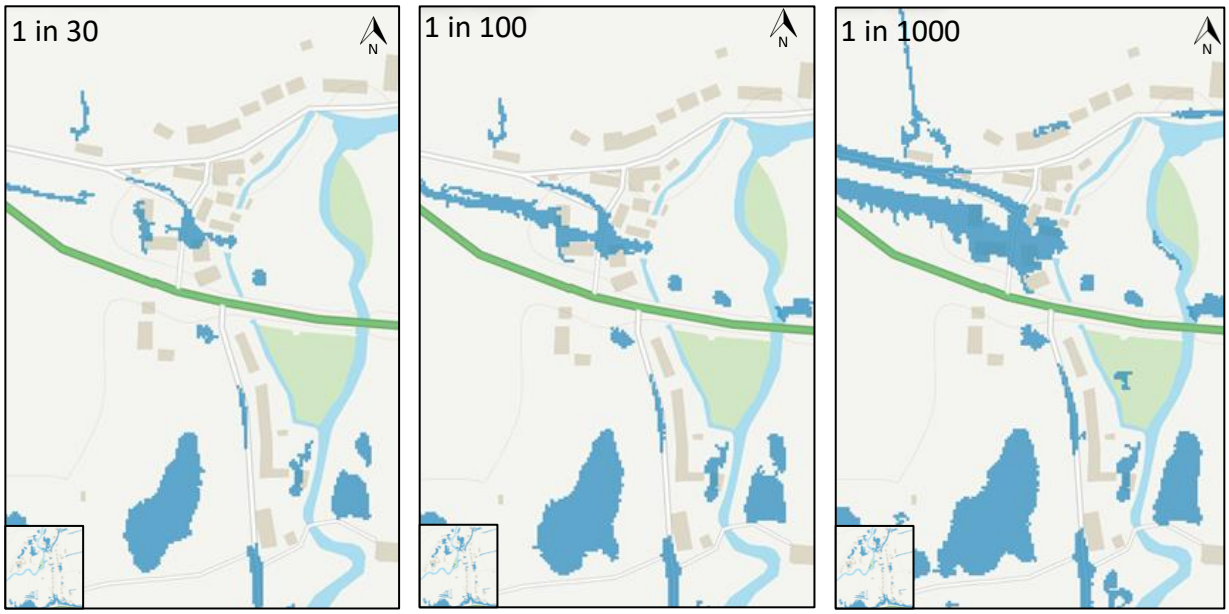
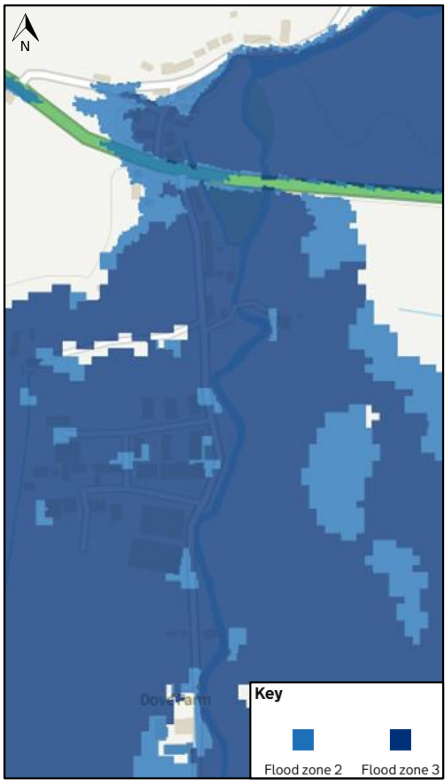


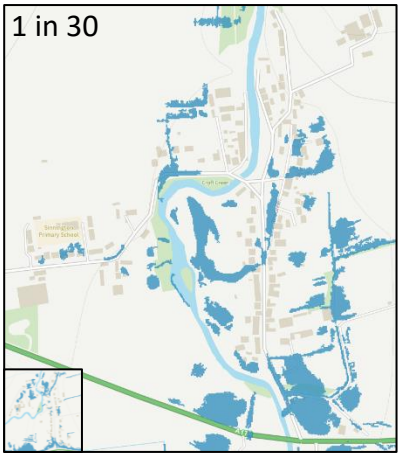
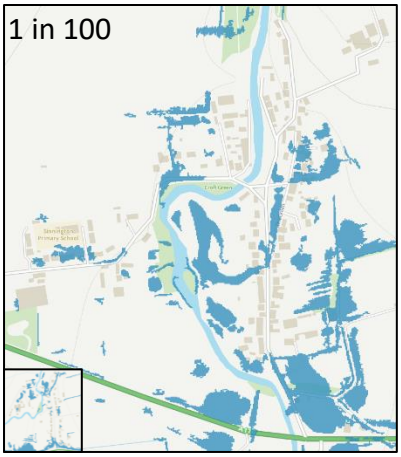
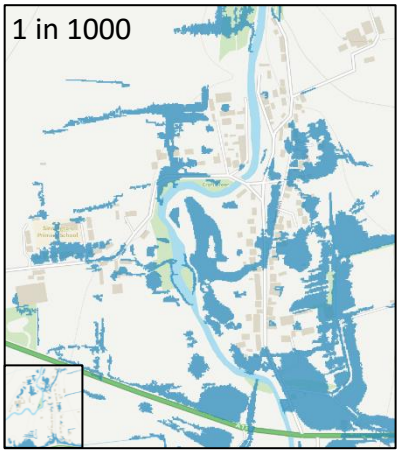
Overland flow paths are the route that water takes over the surface. These are closely linked to the topography of the landscape, however they can also be impacted by physical features such as roadways and properties.

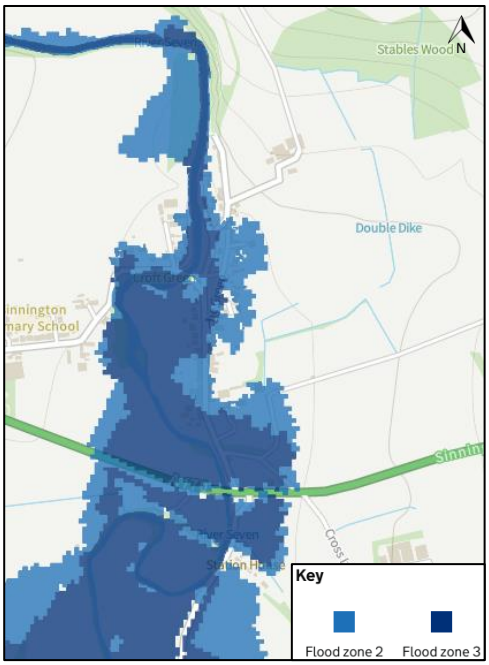
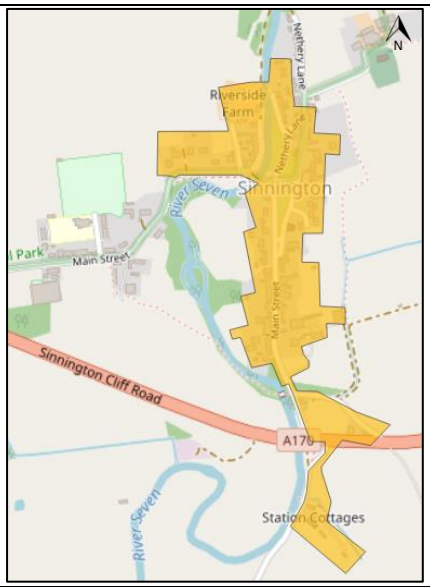
There are multiple prominent routes in Keldholme, most notabley on the eastern side of the village flowing from east to west, following the hill side, to the River Dove. These are the paths runoff takes from the surrounding fields.

Overland flow paths can be closely linked to the roadways present, with a path following the southern section of Gray Lane, and a number of paths following the northern border of the A170. This is tied to high surface water flood risk.

Overland flow paths converge along the back of properties to the southern end of Gray Lane, and at points along the northern end of Gray Lane.

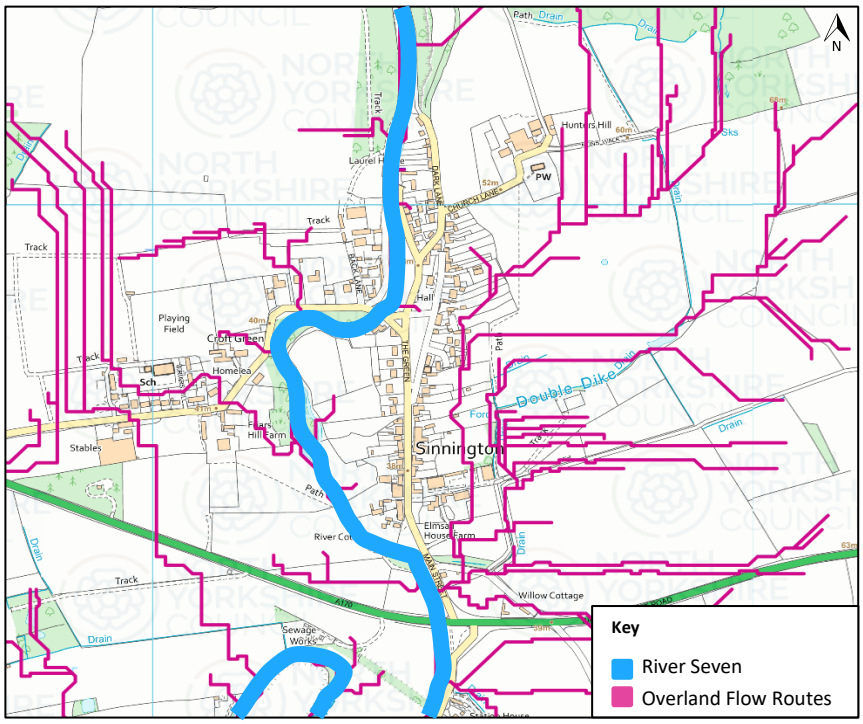
Kirkby Mills Surface water flood risk	 A surface water flow route can be identified in the northwest of the above map, travelling south past the Kirkbymoorside Cricket ground. A further area can be found on the road to the north of the A170. Further areas of risk can be found running along Kirkby Mills Road, to the south of the A170.
Kirkby Mills Fluvial flood risk	 Kirkby Mills is covered fully by Flood zone 2 and 3, except for a small area to the north.

Kirkby Mills Flood warning alert areas and known flood defences	 Areas to the west of the River Dove are included within a Flood Warning Area. The warning is known as “122FWF809 Properties on Dove Way, Kirkby Mills, and Keldholme”.
Sinnington Surface water flood risk	   A large portion of Sinnington is at a high risk of surface water flooding. Areas of risk are present throughout the village, the most apparent being to the southeast on the fields behind The Green. This is potentially linked to the drain network present.

Sinnington Fluvial flood risk		As shown on the Government Flood Maps for planning, a large portion of Sinnington is in Flood Zone 2 and 3. The properites along Main Street and The Green, along the eastern edge of the river, are most affected by this. While most properties to the west are in Flood Zone 1.
Sinnington Flood warning alert areas and known flood defences		122FWF627 Properties along Main Street in the village of Sinnington

Sinnington

Overland Flow Routes



Overland flow paths follow the topography of Sinnington.

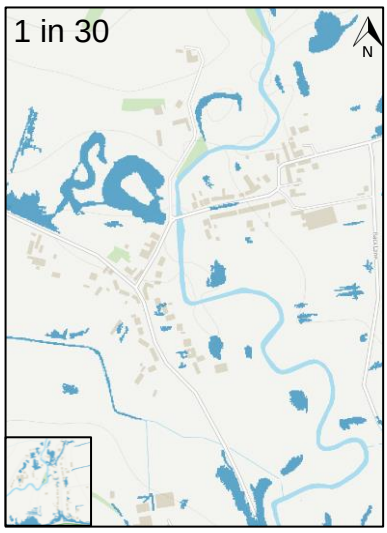
On the east of the River Seven, water flows northeast to southwest. Flows come from Stables wood to the north, and from the fields to the east. All the eastern overland flows converge at one point near The Poplars, to the south of Sinnington, before joining the River Seven.

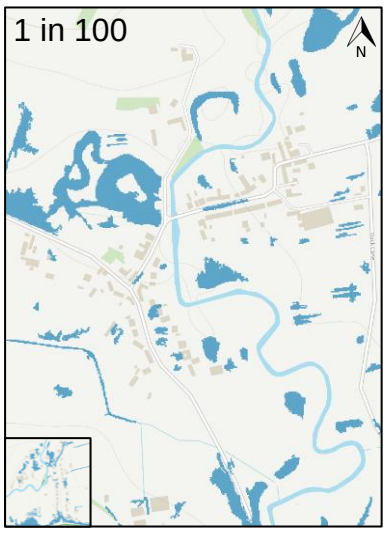
On the west of the River Seven there is a section of parallel overland flow routes that converge near the roadway, this is tied to an area of high surface water flood risk.

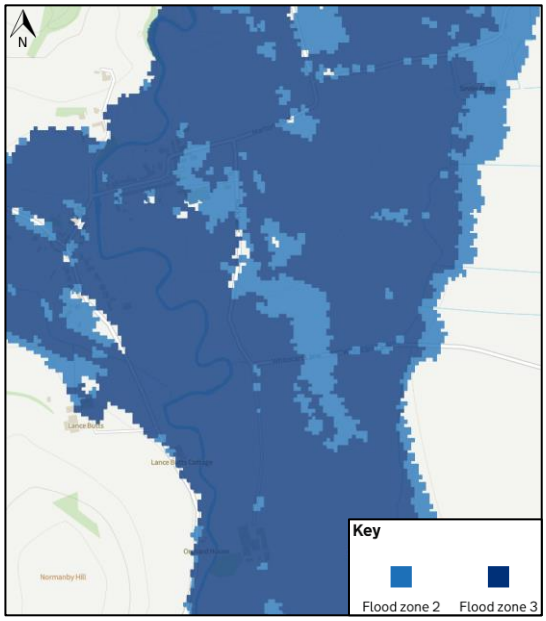
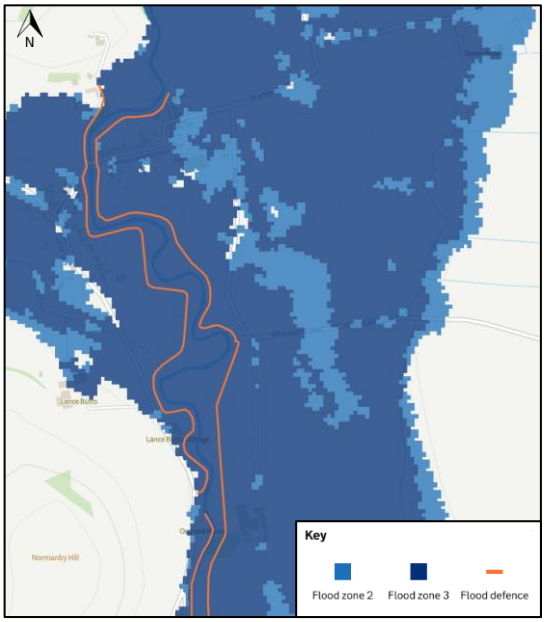
Throughout Sinnington a vast number of the areas at risk of surface water flooding, as shown in the flood risk maps above, can be linked to overland flow routes.

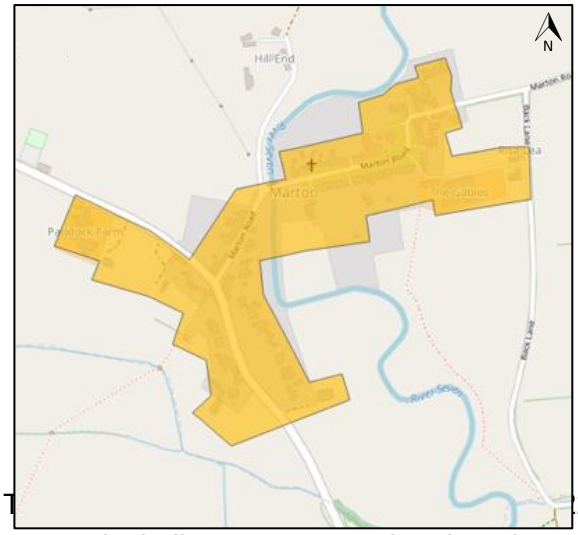
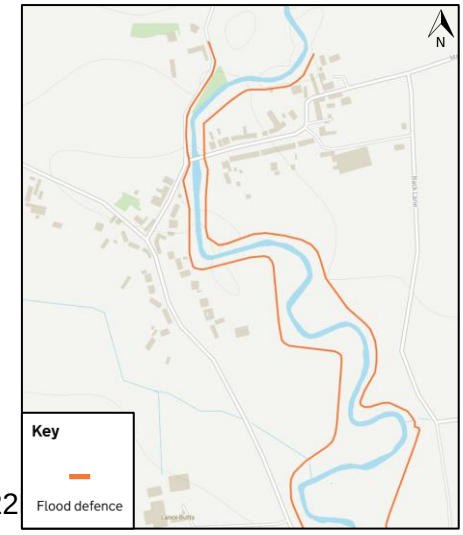
Marton

Surface water flood risk





	While areas of risk can be seen throughout the town, the most prevalent area is to the north-west. This section is a relatively flat, low point with slopes to the north and southwest, suggesting that the high surface water flood risk is linked to the topography of the landscape.
Marton Fluvial flood risk	  All of Marton is in Flood Zone 2 and 3, with the majority of properties being in Flood Zone 3. The map to the right shows the location of the flood defences, as described in the map below, however does not display the impact this has on the flood zones.

Marton Flood warning alert areas and known flood defences	  T 22 in the village of Marton including Marton Road and Back Lane. The orange line identifies the current known flood defences for Marton, this is a series of flood embankments along the banks of the River Seven.

9. Maintenance responsibilities

A "watercourse" is any river, stream or channel – including ditches, dikes, drains, culverts, cuts, sluices, sewers (except public sewers) through which water flows either permanently or periodically. Often a watercourse will be the boundary between two adjacent landowners and where this is the case the boundary is deemed to be the centre of the channel, the owner of the land or property on each side being responsible for maintenance of their side. This is referred to as Riparian Responsibility[6]. Culverts under roads are usually the responsibility of the relevant Highway Authority, either National Highways or North Yorkshire Council. Watercourses are designated as either being "main" rivers or "ordinary" watercourses.

The Environment Agency has powers, but not a duty, to carry out maintenance and regulate riparian activities on watercourses which have been designated as "Main" rivers. Where an immediate heighted risk of flooding has been identified, the Environment Agency may choose to act on those powers to remove obstructions to flow or enter into discussion with the riparian land owners to

[6] (Owning a watercourse - GOV.UK).

alleviate the immediate risk. The Environment Agency also has powers to build and maintain flood defences on these rivers where deemed necessary, proportionate and when funding is available. Within the Section 19 Investigation area, the River Dove and River Seven are designated Main rivers.

Watercourses which are not listed above, including Double Dike in Sinnington, are ordinary watercourses, and responsibility for these rests with their riparian owners. North Yorkshire Council as Lead Local Flood Authority has powers to enforce riparian owners to undertake maintenance, which are exercised proportionally according to the degree of flood risk.

Yorkshire Water is responsible for managing and maintaining the network of public sewers throughout the investigation area. Public sewer networks are either combined systems, where foul and surface water drain through the same pipes to the local waste water treatment works, or are separate systems where foul water is conveyed to the sewage works and surface water is conveyed either to a local watercourse or other receiving body of water, or to a point at which it joins the combined sewer network. The villages in this report are mostly served by combined and Foul Sewer systems, however there are some private foul systems in place.

10. Investigation

10.1. Rainfall event – location, depth and duration

The Met Office Seasonal Assessment for Autumn 2024[7] notes that autumn rainfall for the UK was 10% lower than the long-term average rainfall, however, large spatial differences were noted. For England, the autumn average rainfall was 20% higher than the long-term average rainfall. On the 23rd of November, Storm Bert hit the UK as the second named storm of the season. This brought 6 hours of persistent and extensive rainfall on the 23rd of November, with intermittent rainfall continuing into the 24th November[8]. This produced disruptive surface water flows and high river levels, which had a significant impact across Wales, with road flooding present within North Yorkshire. Between Storm Bert and the onset of Storm Darragh, 2 weeks of frequent short duration intermittent rainfall was present in the Rye area. Prior to the onset of Storm Darragh, on Thursday 5th December there were 2 hours of sustained intense rainfall, which maintained high river levels within the Derwent catchment. Storm Darragh, the fourth named storm of the season, began with a low-pressure weather system tracking to the west of Ireland 6th December 2024. Red warnings for wind and yellow rain warnings were implemented for the UK on the 7th of December, with damaging winds and torrential rainfall predicted.

[7] Microsoft Word - Seasonal Assessment - Autumn24
[8] Microsoft Word - 2024_09_storm_bert_conall.docx

The weather chart (Figure 3) illustrates the location of the weather system over the UK and demonstrated that the UK was hit with a north westerly wind direction. The UK's prevailing wind direction is westerly or south westerly, the wind direction for Storm Darragh is not typical for a winter UK storm in this catchment. The below radar image demonstrates the rainfall that occurred over the region from 06:00 on the 7th December until 00:00 on the 8th December. The higher rainfall totals appear to correlate to the location of higher topography (North York Moors National Park), also known as orographic rainfall. The higher rainfall totals align with the source of the Rivers Dove and Seven, located within the North York Moors National Park.

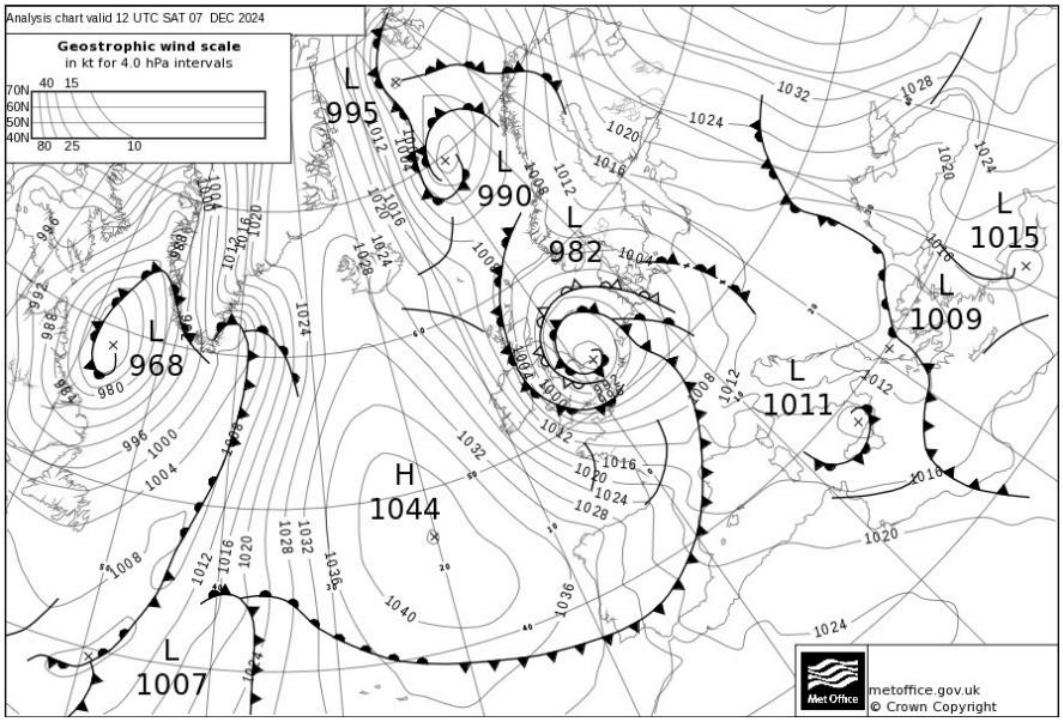


Figure 3 Location of weather system over the UK

For analysis and risk estimation purposes, the magnitude of rainfall is often expressed as return periods. A return period is a statistic derived from historical data and is the average time between events. For example, a rainfall event can be described as a 1 in 100 year rainfall event which means there is a 1% chance of that rainfall occurring in any given year.

Rainfall data provided to the LLFA from Yorkshire Water for the 7th of December 2024 recorded a peak rainfall intensity of 1 in 1 year return period at the areas that suffered flooding. The rainfall event also lasted approx. 12 hours, from roughly 9am to 9pm and totalled at 15.5mm of rainfall. Rainfall data provided by the Environment Agency from the sources of the River Dove and Seven, higher up in the catchment indicated a higher return period of 1 in 25 years, with about 80mm of rainfall accumulated within 25 hours. Met Office total rainfall maps are generally in agreement with the Environment Agency data (FIGURE XX).

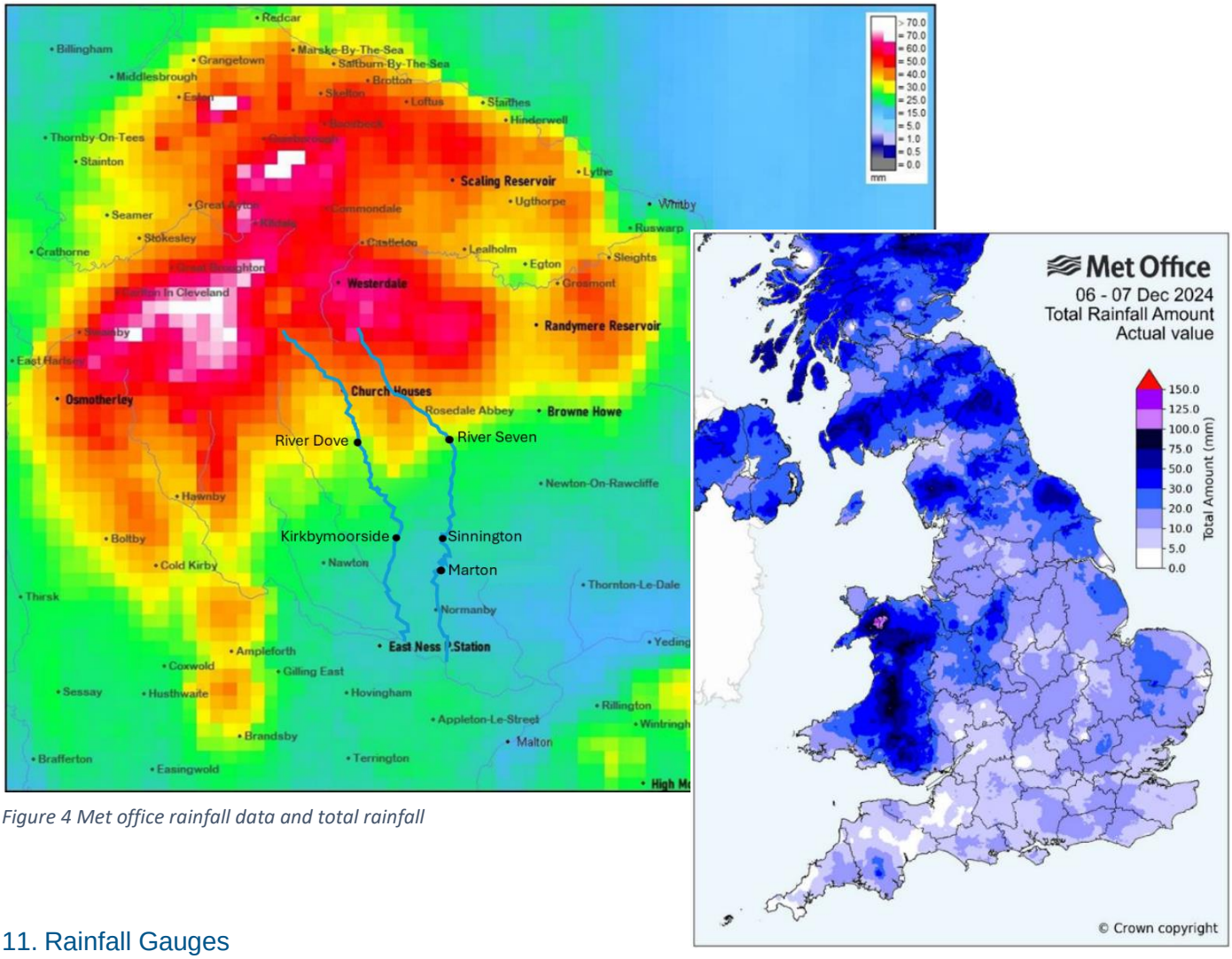


Figure 4 Met office rainfall data and total rainfall

11. Rainfall Gauges

11.1. Local Yorkshire Water Rainfall Gauges

The Yorkshire Water rainfall gauges are located locally within Kirkby Mills, Sinnington and Marton, so provide in situ records for the areas impacted by flooding. The rainfall gauges are corroborated against radar levels. The following graphs demonstrate the hourly rainfall for each area for the time of the Storm Darragh rainfall event.

Peak recorded rainfall for Kirkby Mills and Keldholme occurred at 16:45 with 2.11mm of water falling in an hour, with an accumulated rainfall of 11.3mm. By the end of the night, rainfall accumulations for the Kirkby Mills and Keldholme area had totalled 15.52mm.

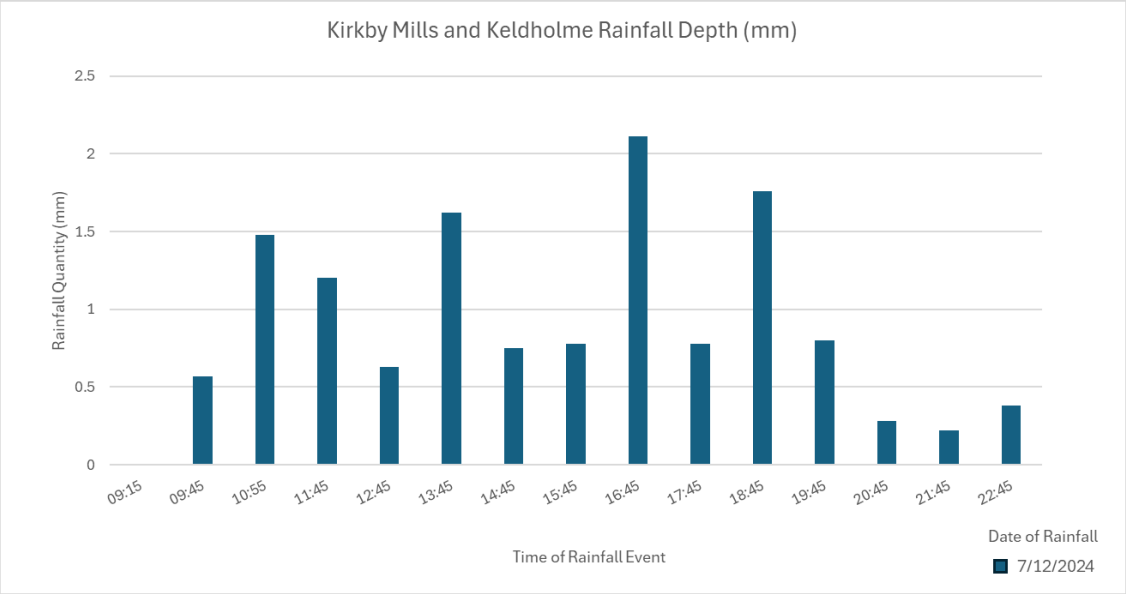


Figure 5 Kirkby Mills and Keldholme Rainfall Depth

The recorded peak rainfall for Sinnington on the 6th of December occurred at 20:50 with a total of 2.25mm for the hour. Peak rainfall on the 7th of December occurred at 10:50 with 1.46mm of rainfall recorded. By the end of the night, rainfall accumulations had totalled 14.55mm.

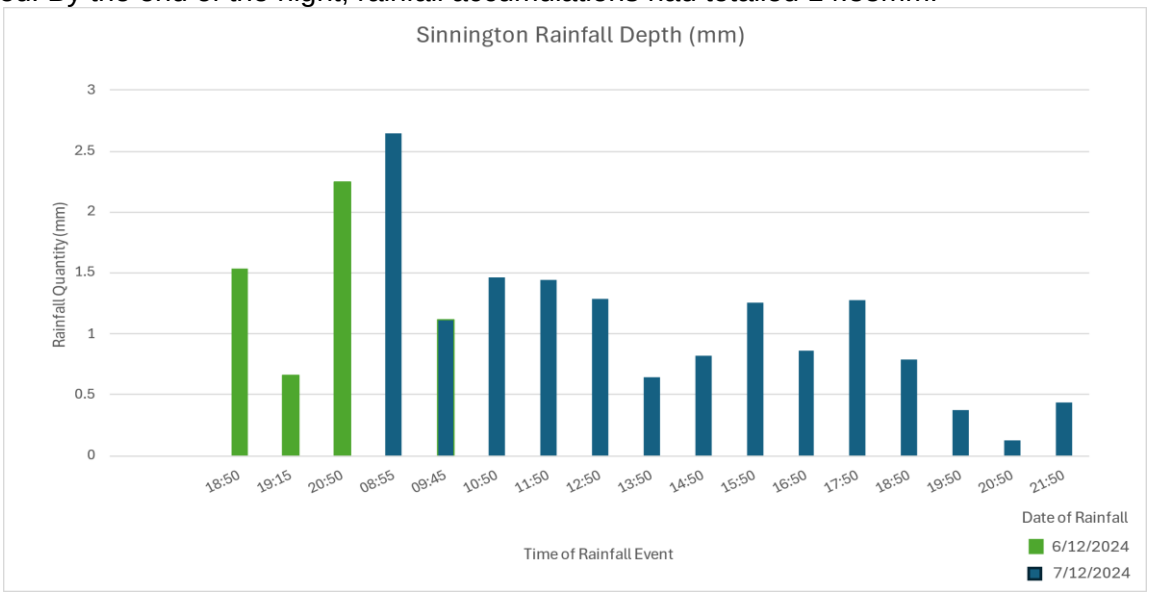


Figure 6 Sinnington Rainfall Depth

The reported peak rainfall for Marton occurred at 11:50 with a total of 1.44mm recorded for the hour. Peak rainfall accumulations totalled 14.34mm by 20:50.

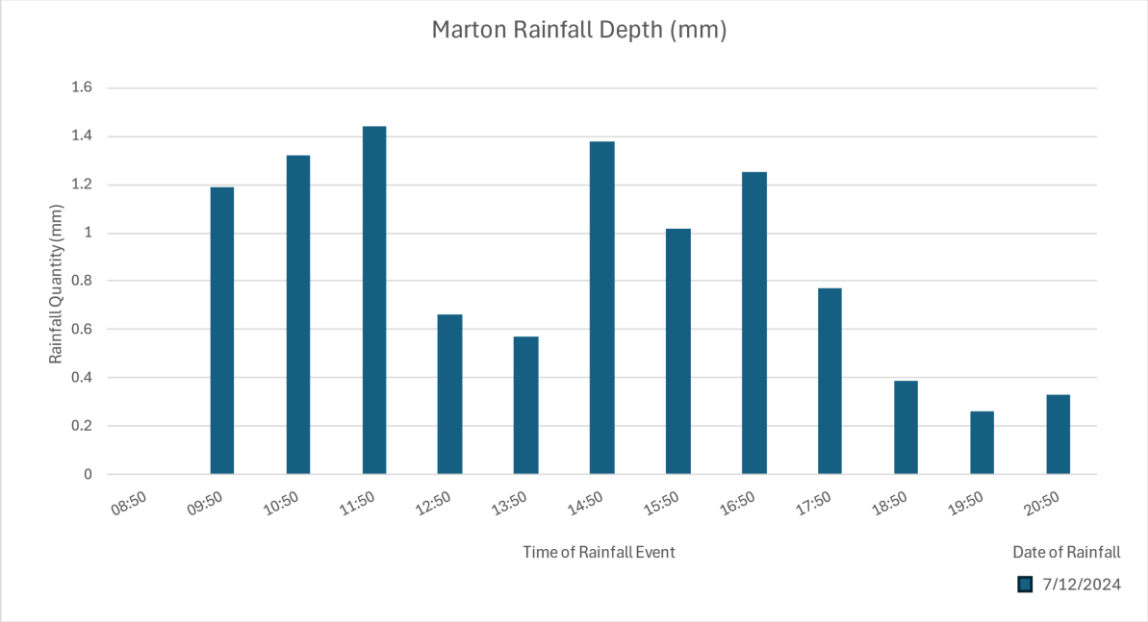


Figure 7 Marton rainfall depth

11.2. Environment Agency Rainfall Gauge vs River Level Data

The Environment Agency provided North Yorkshire Council rainfall data from their gauge at Church Houses, within the North York Moors National Park. The location of the rain gauge covers areas of the upper catchment of the River Dove.

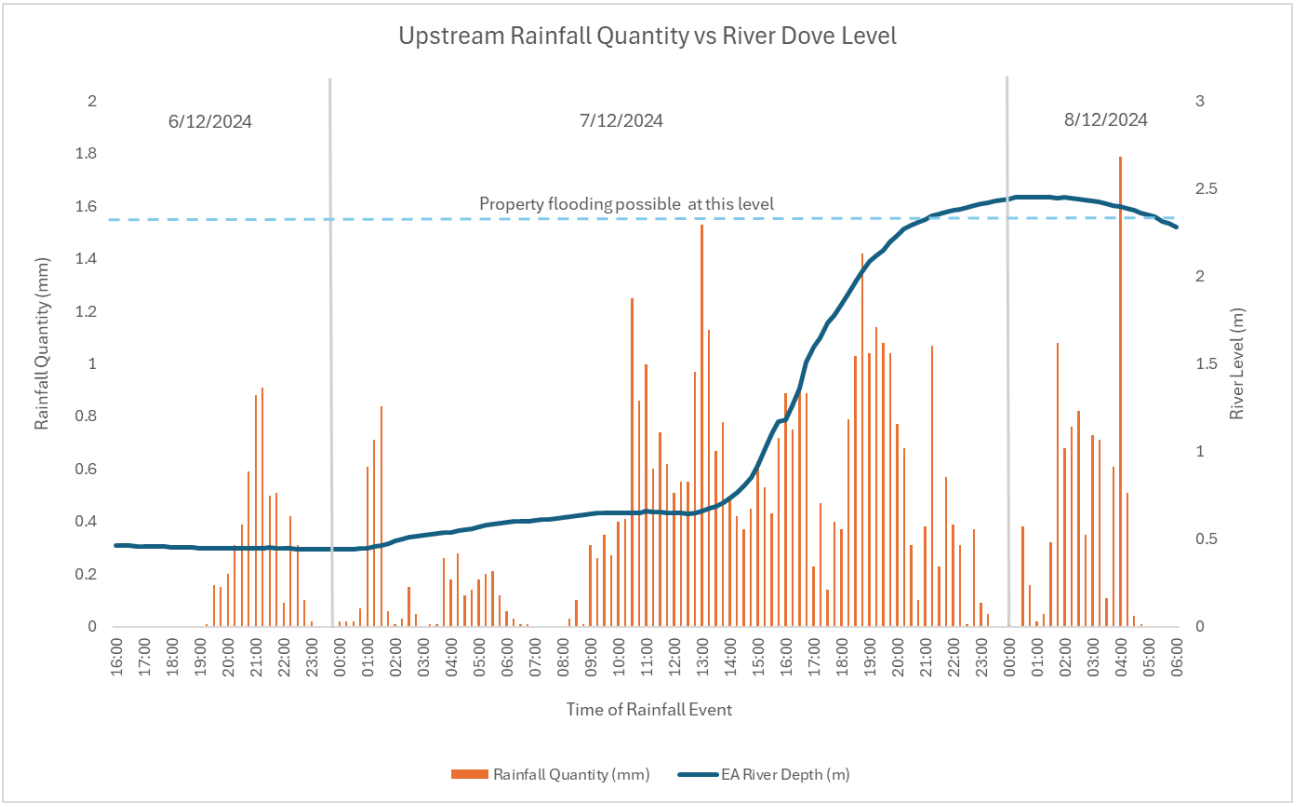


Figure 8 Upstream rainfall quantity vs River Dove level

The graph shows rainfall in the Dove catchment generally continued to fall from 19:00 on the 6th of December through to 04:45 on the 8th of December. Peak rainfall on the 6th of December occurred at 21:15 with a total of 0.91mm. Peak rainfall on the 7th of December occurred at 13:00 with a total of 1.53mm. Peak rainfall with totals of 1.79mm occurred at 04:00 on the 8th of December. In total, 55.07mm of rainfall fell within the gauge. The graph has the river level at Sinnington overlaid, there is an approximate lag time between rainfall and river level change of around 3.5-4 hours for the more intense rainfall spikes.

The Environment Agency provided North Yorkshire Council rainfall data from their gauge at Brown Howe, within the North York Moors National Park. The location of the rain gauge covers areas of the upper catchment of the River Seven.

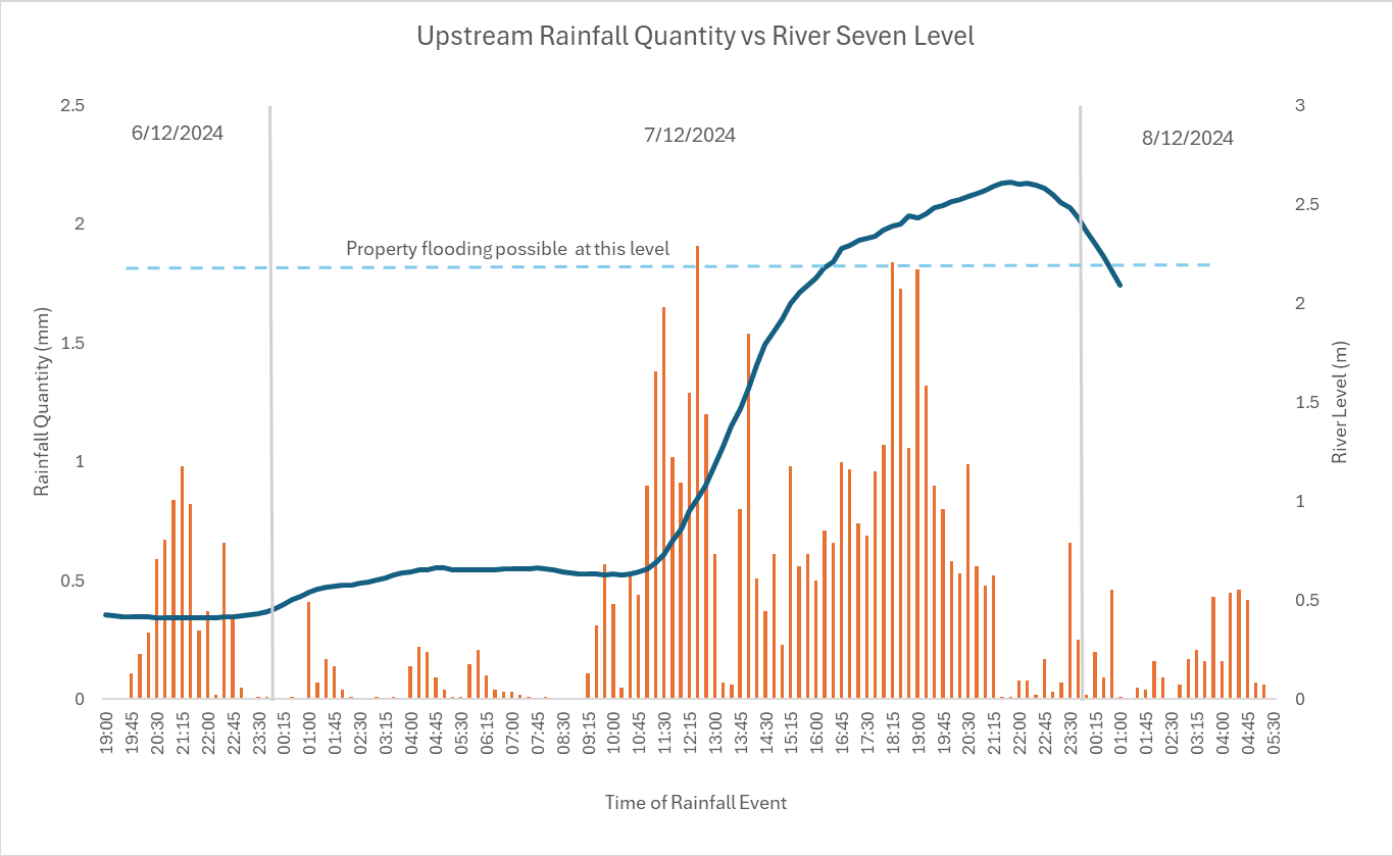


Figure 9 Upstream rainfall quantity vs River Seven level

The graph shows rainfall generally continued to fall from 19:30 on the 6th of December through to 05:30 on the 8th of December. Peak rainfall on the 6th of December occurred at 21:15 with a total of 0.98mm. Peak rainfall on the 7th of December occurred at 12:30 with a total of 0.91mm. Peak rainfall with totals of 0.46mm occurred at 00:45 and 04:30 on the 8th of December. In total, 53.59mm of rainfall fell within the gauge. The graph has the river level at Sinnington overlaid, there is an approximate lag time between rainfall and river level change of around 3.5-4 hours for the more intense rainfall spikes.

11.3. Rainfall discussion

The average rainfall locally for the villages impacted by flooding is around 15mm, which is not an unusually large amount of rainfall, however, it did fall persistently. The rainfall landed on already saturated land, leading to minimal infiltration and surface water flows, via the identified surface water routes within section 7.3.

The Environment Agency rainfall data is taken roughly from 8.5miles north/upstream of Kirkby Mills. The rainfall in this topographically higher area totalled 53.59mm for the entirety of the rainfall event, higher than the rainfall in the locally flooded areas.

12. Average River Level Data

To better understand how the rainfall has impacted river levels, data on the daily average river level of The Dove and Seven was requested from and supplied by the Environment Agency. The following graphs demonstrate the average base level of each river in November, and how the rivers responded to Storm Bert, 2 weeks of intermittent heavy rainfall, a 1 in 5 heavy rainfall event and Storm Darragh.

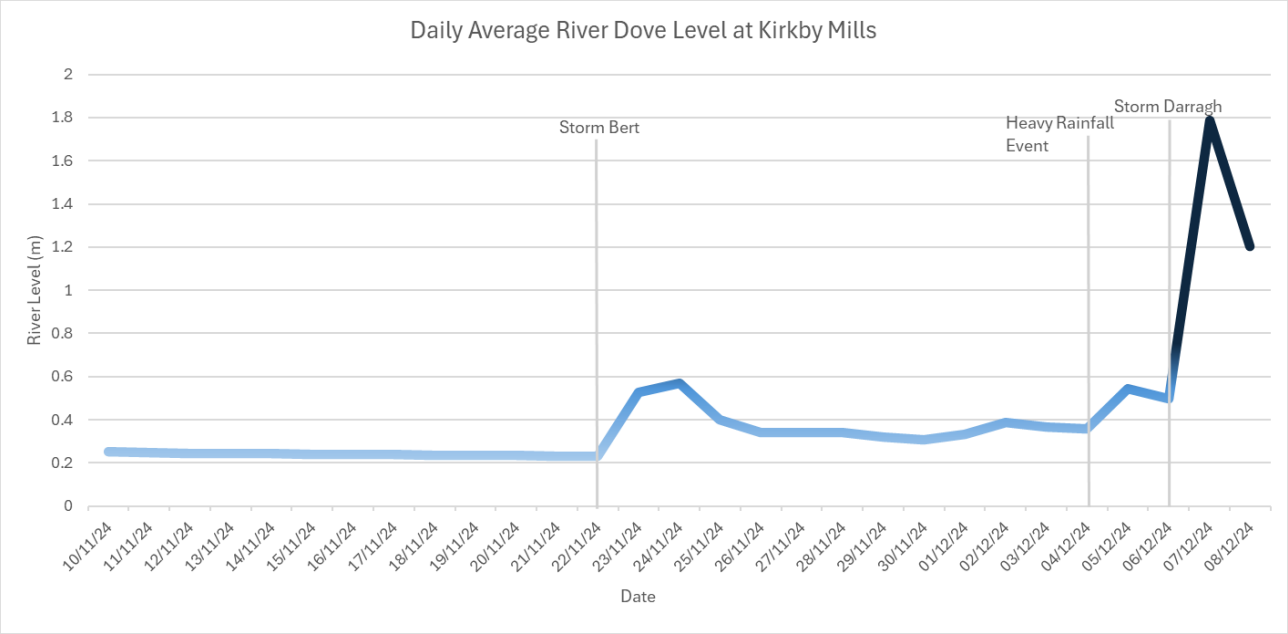


Figure 10 Daily average River Dove level at Kirkby Mills

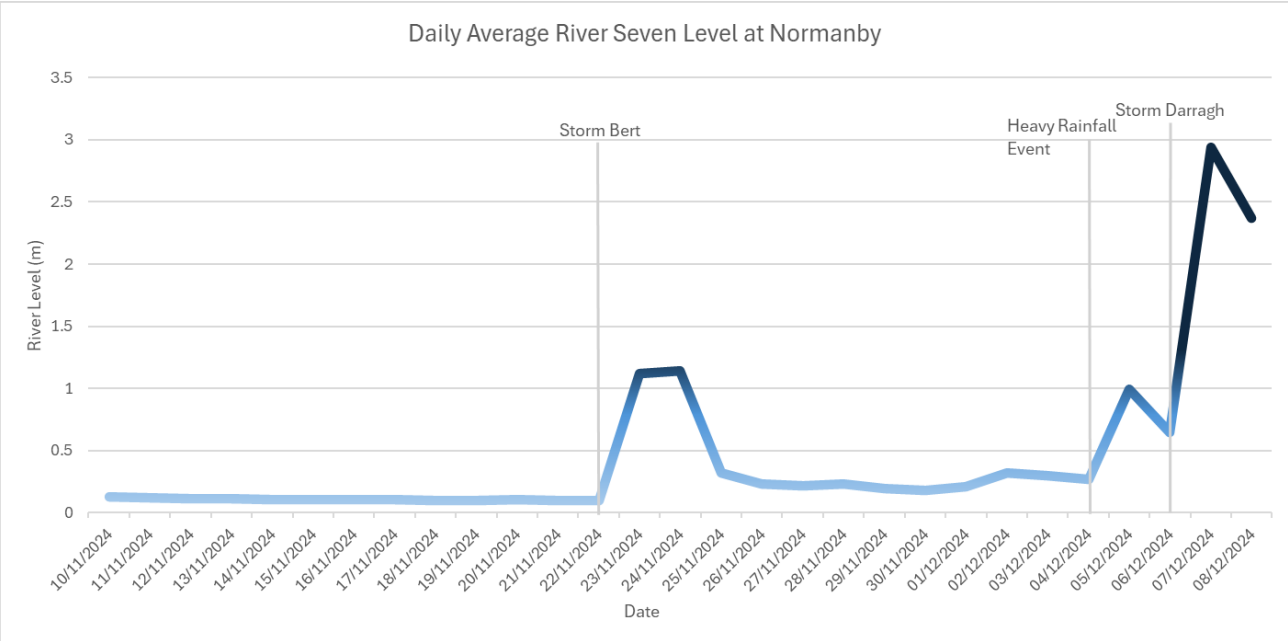


Figure 11 Daily Average River Seven level at Normanby

In general, both rivers responded with similar peaks to Storm Bert, with the rising limb in both cases rising at a similar rate to the heavy rainfall event on the 5th December. Two weeks of intermittent yet heavy rainfall kept the river levels higher than the rivers average base level. Prior to Storm Darragh, neither river level had fallen substantially to the pre 1 in 5 rainfall event levels.

12.1. River Level and Rainfall Discussion

Yorkshire Water's rainfall data was derived from radar observations rather than local in situ measurements. This introduces a degree of uncertainty, as radar-based estimates can differ from ground-based recordings, particularly in complex terrain or during intense storm events.

The Church Houses rain gauge, operated by the Environment Agency, displayed a data quality flag indicating incomplete records during the event. When compared with radar data presented in Section 10.1, it is possible that actual rainfall totals were higher than those recorded by the gauge, this is because the track of a storm can affect how much of the gauges pick up depending on their relative location to the heaviest rainfall. Radar estimates suggest that between 60 mm and 75 mm of rainfall may have occurred in the upper catchments of the Rivers Dove and Seven.

Environment Agency river level data can occasionally be affected by inaccuracies, particularly when river levels exceed bank full conditions, this overtopping can cause a weird effect near monitoring stations. These conditions can interfere with the accuracy of level recordings and should be considered when interpreting peak values.

During Storm Darragh, significant river level records were broken. On 8 December 2024, the River Dove at Kirkby Mills reached a new peak of 2.454 metres, surpassing the previous record of 2.451 metres. Similarly, the River Seven at Sinnington recorded a new high of 2.614 metres on 7 December

2024, exceeding the previous record of 2.595 metres. The hydrograph for this event showed a sharp rising limb, indicative of rapid runoff and intense rainfall.

Prior rainfall events had elevated baseline river levels, and ground conditions were saturated at the time of Storm Darragh. These factors contributed to increased runoff rates and reduced infiltration capacity. Notably, the storm system approached from the north, directing rainfall consistently into the upper catchments of the Rivers Dove and Seven. This contrasts with typical westerly storm tracks, which tend to distribute rainfall more evenly across multiple catchments. The northerly trajectory of Storm Darragh resulted in concentrated rainfall over the Rye catchment, exacerbating flood conditions.

13. Response to Storm Darragh

13.1. Initial

During the response to Storm Darragh, the Resilience and Emergencies Team (RET) deployed Bronze Commanders to liaise with the Emergency Services and a rest centre was opened in cooperation with the Town Council at the Moorside Room for people who had to leave their homes. Again, with help from the Town Council, RET helped co-ordinate the recovery for local residents by opening a Local Assistance Centre (LAC) also at the Moorside Room, where a number of North Yorkshire Council teams based themselves for over 2 weeks. These NYC teams included RET, Social Care, Housing, Highways, Localities, Stronger Communities, Flood Risk Management, and the Major Incident Response Team (MIRT) who were able to give welfare and trauma support. With help from volunteer groups who also based themselves at the LAC, the council provided skips and helped residents with furniture and carpet removal from flooded properties as well as help with insurance claims and general flood advice. Everyone worked very closely with partners such as Northern PowerGrid and the Environment Agency and NYC helped to facilitate several grants awarded by Two Ridings and continued to make welfare checks long after the LAC closed.

Following the immediate emergency response to flooding caused by Storm Darragh, the Flood Risk Management team conducted site visits to affected areas. These visits focused on gathering evidence of flooding impacts and engaging with residents to provide information and invite them to dedicated drop-in sessions scheduled for January 2024.

In Marton, the Environment Agency carried out temporary embankment repairs in December after a tree was uprooted, compromising the bank’s integrity. A full repair is required to ensure long-term resilience, this has been bid for by the Environment Agency. In addition, tree clearance operations have been ongoing to reduce future flood risk and improve access for maintenance.

13.2. Medium Term

The Resilience and Emergencies Team is actively working with parish councils across the catchment to strengthen local flood preparedness. This includes supporting the development of community

emergency plans, identifying key local risks, and ensuring that residents are aware of response procedures during flood events.

A Property Flood Resilience (PFR) scheme is underway to support residents in Keldholme, Kirkby Mills, and Sinnington. Initial surveys are complete, with installation surveys ongoing. The scheme is funded by North Yorkshire Council, Grant in Aid, and Local Levy, and will deliver tailored resilience measures to reduce property-level flood risk and improve recovery. Progress is being monitored, and residents are being kept informed throughout delivery.

The Environment Agency started a Natural Flood Management project in 2023 in partnership with Yorkshire Wildlife Trust and the Derwent Catchment Partnership. It aims to deliver 11,000m³ of water storage across the 59km² catchment, reducing flood risk to 12 properties in Kirkby Mills.

Measures include leaky barriers, ponds, scrapes, planting, buffer strips, and floodplain reconnection. A key 17-hectare site at Grouse Hall performed effectively during Storm Darragh by storing and slowing a large volume of water that could have made its way downstream. The project also improves 9 hectares of habitat and 5km of watercourse, with additional funding secured for wider environmental benefits. Completion is expected within the current financial year.

13.3. Long term

The long-term response will be guided by the recommendations within this report.

14. Flooding Consequences and mechanisms /Impact of flooding

14.1. Summary

The Lead Local Flood Authority collected data on the impacts of flooding in the following ways; discussions with locals on village walk throughs, flood risk questionnaires submitted by locals, discussions with local residents during the 3 drop in sessions, email correspondence and Section 14 data requests of involved Risk Management Authorities (Yorkshire Water, Environment Agency, NYC Highways, NYC Bridges and NYC Resilience and Emergency team).

In total 87 properties flooded internally or suffered near misses. The properties that suffered near misses, only did so by defending their properties with sandbags, existing property level resilience (flood gates for example) and makeshift defences. The Fire Brigade were called out to a report of a vehicle stuck in flood water in Marton and to redirect water via pump in Kirkby Mills.

14.2. Kirkby Mills

A total of 21 records of internal flooding and near-miss events were reported in Kirkby Mills during the incident. The Environment Agency notes that an alert was issued at 16:00 and the warning at 21:26. According to residents, a flood alert was issued at approximately 20:25, with river water entering properties around 21:00.

Surface water flows were observed travelling from Kirkbymoorside towards Kirkby Mills along the A170 and the access road to Kirkby Mills and Keldholme. These flows accumulated in a topographical low point on Kirkby Mills Road, adjacent to the access road to The Cornmill. In this

location, three highway gullies were reported to have surcharged. Residents raised concerns regarding the quantity of surface water runoff they witnessed coming from Swineherd Lane, past the Cricket Ground and into Kirkby Mills, with several residents stating the quantity of surface water during Storm Darragh was more than had been witnessed recently. North Yorkshire Council Highways noted in their Section 14 response that the gullies in this area are cleaned annually and were last cleaned due to a response to Storm Darragh on 23/12/2024.

To the south of the A170, the first property was reported to have flooded at approximately 16:00 due to an overtopping of the Mill Race. This property is situated within a local topographical low spot. Additional properties in the area were affected by flooding from the front, attributed to a combination of water pumped from the north of the A170, surface water runoff from the A170 itself, and river water that had escaped through gaps between properties.

Yorkshire Water reported telemetry data indicating a power failure at their pumping station south of Kirkby Mills at 17:22, with a second failure occurring at 23:11. The latter event also affected the backup system. During pump failure, excess water was diverted to the River Dove via an overflow pipe. Yorkshire Water have noted that this pipe has a low outfall elevation. At 23:11, river levels were recorded at approximately 2.4 metres, likely submerging the outfall and causing surcharge in the vicinity of the pumping station.

Discussions with residents and Yorkshire Water identified a potential hydraulic restriction on the Mill Race caused by a Yorkshire Water Combined Sewer Overflow (CSO) pipe, which crosses in front of a small bridge over the Mill Race. Residents noted seeing water overtop at this location. This pipe may affect conveyance, however, the Dove will have been high and backing up the Mill Race, therefore water would be backing out of channel, nonetheless. A report from the North Yorkshire Council Bridges Team also indicated the presence of silt at this bridge. These two factors may have contributed to a reduction in channel capacity at this location, however, the impact would have small on the overall flooding.

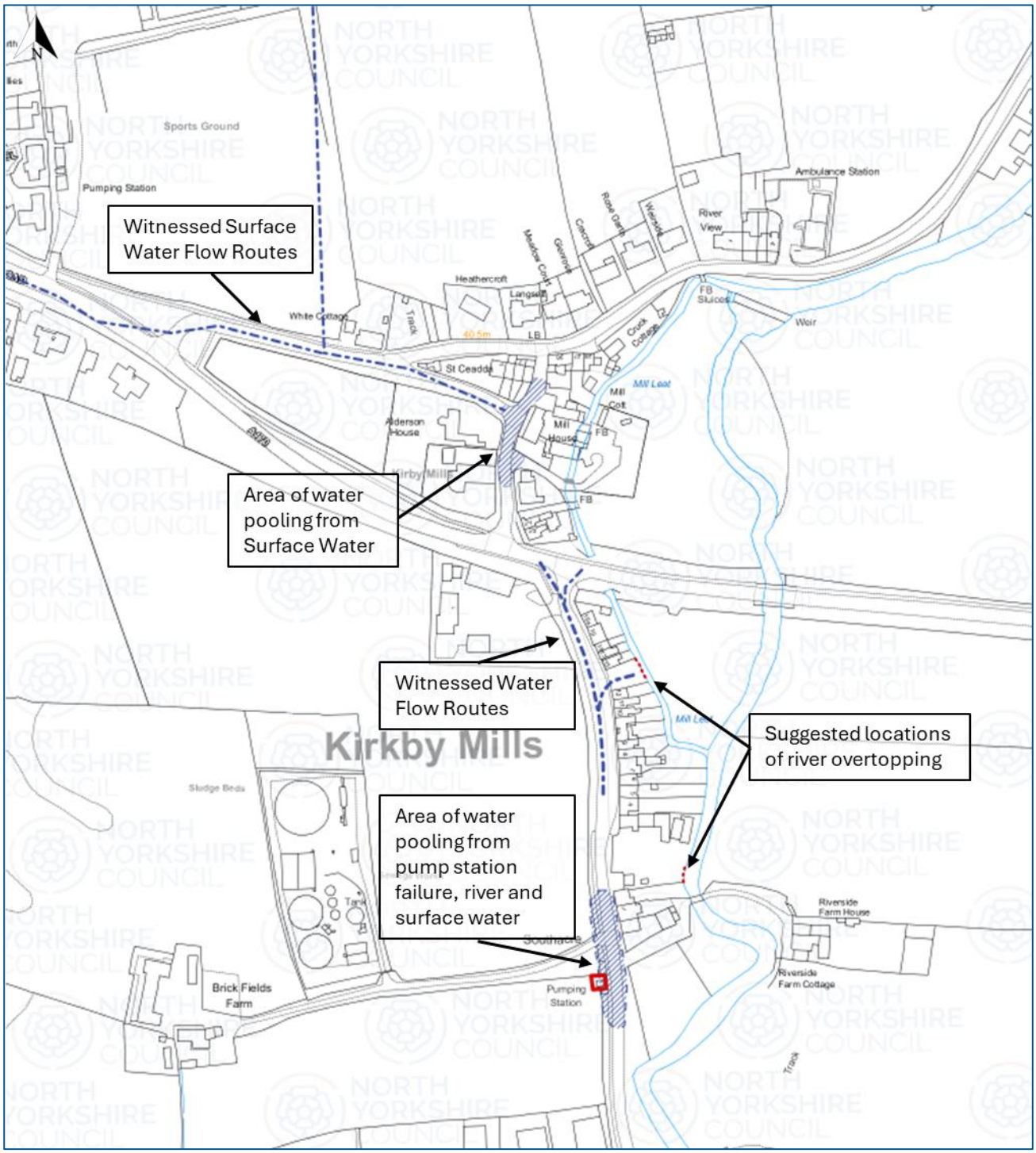


Figure 12 Map detailing observed events in Kirkby Mills

14.3. Keldholme

Eight residential properties in Keldholme were reported to have experienced internal flooding during Storm Darragh. Residents indicated that a flood alert was received at approximately 17:00, followed by a flood warning at around 22:00. The River Dove was observed overtopping its banks between 22:00 and 23:15, with internal property flooding following shortly after. Additionally, surface water was witnessed collecting on the highway at approximately 19:30.

Concerns were raised by residents regarding the condition of Keldholme Bridge and the potential impact of silt accumulation. A review of North Yorkshire Council Highways Bridge inspection reports confirmed that there has been no recorded increase in silt levels over the past six years. Each bridge in the area is subject to inspection on a biennial basis.

Further concerns were expressed regarding surface water flows originating from the north and east of Keldholme, as identified in figure 13. The North Yorkshire Council Highways has acknowledged awareness of flows from the east. Funding is being sought to investigate the issue and where possible, remediate.

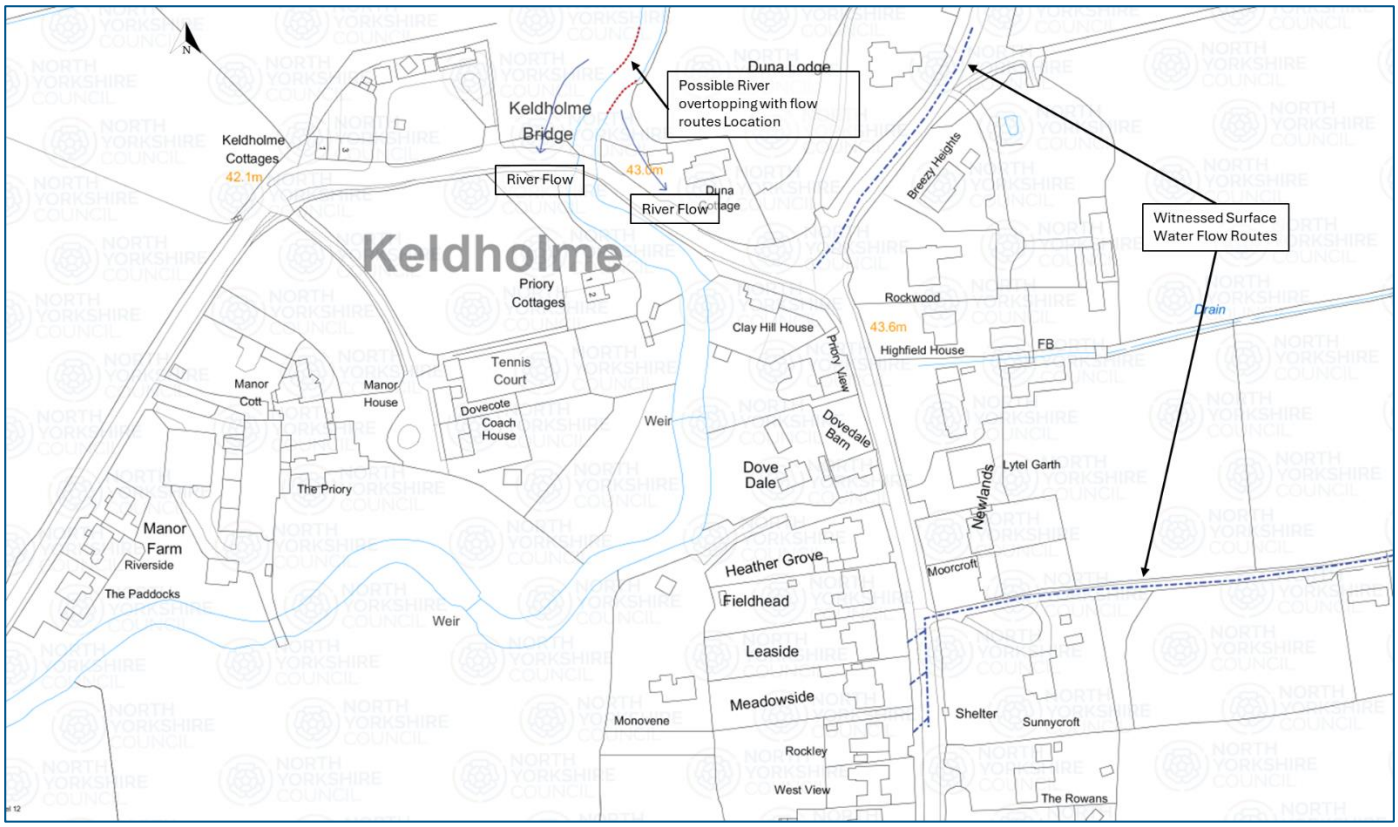


Figure 13 Map detailing observed events in Keldholme

14.4. Sinnington

A total of 21 flood incidents were reported, of which 19 involved internal property flooding. The local community demonstrated strong communication and cooperation, with residents assisting one another in preparing for the event. Many properties avoided internal flooding through the use of improvised flood defences, including sandbags, towels and boards.

The initial overtopping of the River Seven was observed at approximately 17:30 along Main Street. A resident reported a flood warning, followed by a flood alert reported by residents at 19:30. The Lead Local Flood Authority noted that many residents in Sinnington were not signed up to the Environment Agency flood warning system, or reported that they did not receive appropriate

warnings. Residents reported internal flooding between 22:00 and 23:00, with most of the properties flooded from the front by water from the River Seven.

The flood water travelled down Main Street, before being channelled through a gap in houses on the west, before rejoining the River Seven. Some residents raised concerns regarding tree blockages in the river channel, the Environment Agency have stated in their Section 14 response that the field team have cleared trees and blockages in the area.

The local pub, situated on higher ground, served as a refuge for some residents and visitors, who relocated vehicles to its car park and sought shelter there. A handful of residents noted that a tractor transported individuals through floodwaters from the pub down Main Street at a speed sufficient to generate a bow wave, which contributed to flooding at nearby residential properties.

The River Seven also overtopped towards the south of the village. There's a parcel of land adjacent to the watercourse that acts as location where excess river water is stored when the Seven overtops. Site observations indicated that this parcel of land did hold some water back, however, over time the level of the parcel of land has increased. The Environment Agency plan to survey this land to see whether lowering the level would provide some resilience benefits, this is in conjunction with the land owner.

A frequent issue raised by residents was the quantity and frequency of surface water travelling down to Sinnington from the gently sloping land to the east. The watercourse Double Dike is partially culverted, and therefore does not capture surface water flows in that location. Surface water flows accumulate and travel towards properties, contributing to one known reported incident of internal flooding, and several cases of garden flooding. Some of these flows then fall into the open sections of double dike, before out falling into the River Seven at the south of the village. Engagement with landowners has begun involving Natural England, Environment Agency and NYC. The aim of this engagement is to explore opportunities for reducing surface water runoff from adjacent farmland, potentially through modifications to farming practices and improvements to watercourse management.

Concerns were raised by residents regarding the condition of Sinnington Bridge and the potential impact of silt accumulation. A review of North Yorkshire Council Highways Bridge inspection reports confirmed that there has been no recorded increase in silt levels over the past six years. Each bridge in the area is subject to inspection on a biennial basis.

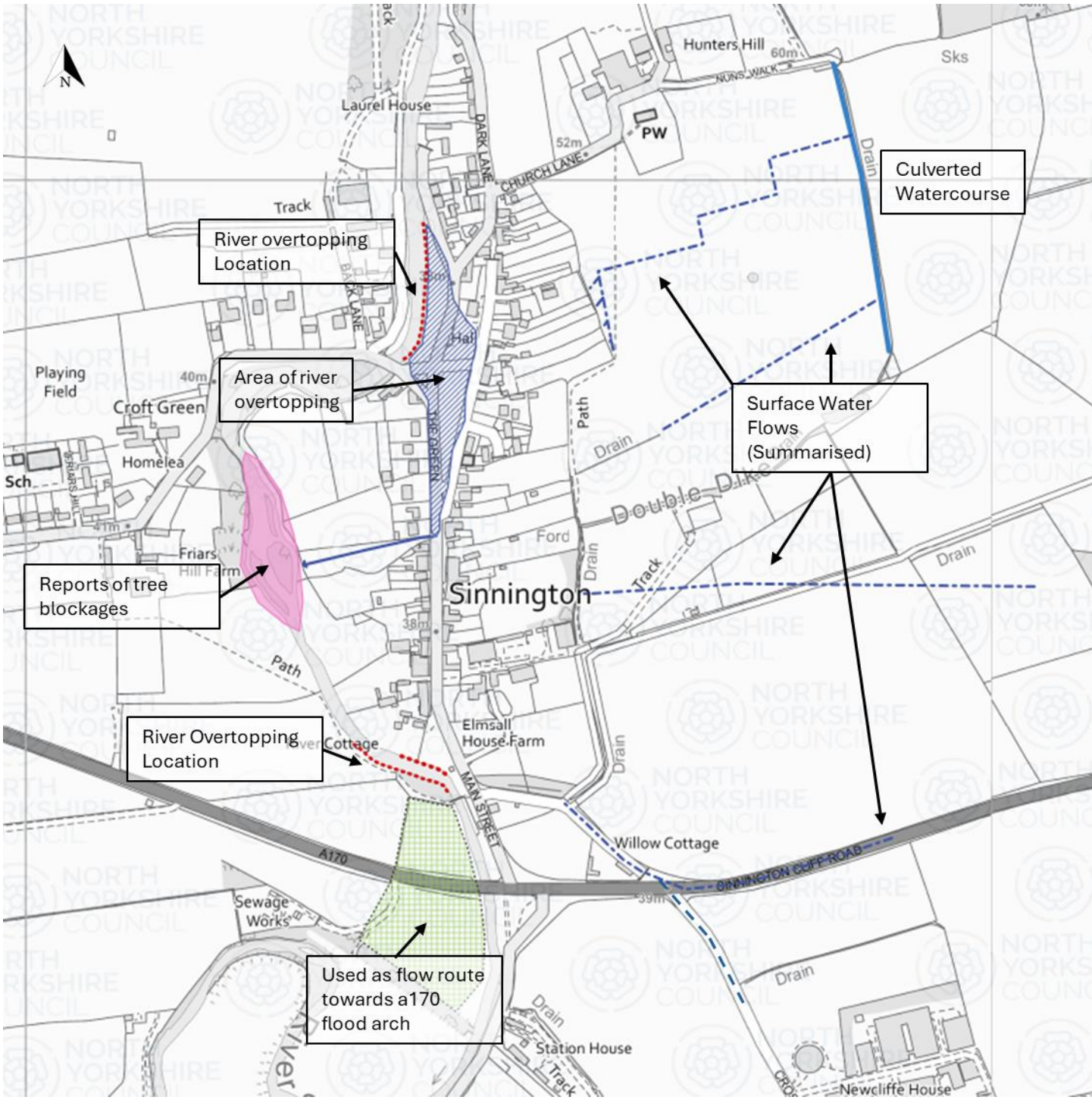


Figure 14 Map detailing observed events in Sinnington

14.5. Marton

Lead Local Flood Authority have 24 records of flooding in Marton, with 20 of these being internal flooding. Marton is partially defended by flood embankments, which stop at the northerly residential extent of the village. During Storm Darragh, the river level was high but was constrained by flood defences until early in the morning of the 8th December. To the north of Marton, where the flood defences are absent, water accumulates in the field as part of the natural flood plain. According to

residents, the field normally floods and water exits a gate adjacent to Back Lane and travels down Back Lane before re-entering the watercourse to the south of the village. Prior to Storm Darragh, the field had recently been worked and was covered in loose vegetation. From the image below, it is apparent flood water mobilised the loose vegetation, which in turn blocked the gate, causing the water to further rise within the field.

Figure 15 Photo of gate with vegetation blockage in Marton

At some time after 01:00, the water level rose to a height that caused it to find a different flow route nearer the village side of Marton Road, causing the flood waters to travel into the village. At a similar time, near to Marton Bridge, two trees were blown down. Unfortunately, one of the trees was located within the flood bank, which went on to cause a 7m wide breach of the flood bank. This caused flood water to damage a house and continue to spill into Marton Road near the bridge. Reports state that flooding along Marton Road reached around 1m in height. The high level of flood water in the village was further pushed into houses on the south of Marton Road by the northerly wind.

The residents raised concerns regarding whether the unusual northerly wind from Storm Darragh may have been a factor that caused the trees to fall. Trees do develop mechanical adaptations over time in response to prevailing wind directions. This process is called thigmomorphogenesis, where trees strengthen their structure (especially root anchorage and stem flexibility) in response to regular

mechanical stress like wind. However, there could also have been several other biotic and abiotic factors at play, like saturated soil or riverbank erosion, or root or trunk damage caused by fungi, or low vitality caused by pests & disease.

It is noted that Yorkshire Water are in the process of separating out the surface water from the combined sewer system, by adding water butts to properties and re-piping the parts of the system to the surface water sewer. The surface water sewer outfalls to the River Seven by Marton Bridge with a flap valve. Yorkshire Water do have concerns that some land drains are connected to the system, which could also be increasing the backlog of water seen in Storm Darragh. However, it is noted Yorkshire Water will investigate the system via CCTV survey to identify any incorrect connections.

The Environment Agency performed a temporary repair of the embankment on the 23rd December 2024 and planned to remove the second tree fallen in April/May. They also carried out tree and blockage work between Marton and Normanby in February 2025.

From site walkovers, and discussions with the Environment Agency and residents, it is clear that the state of the flood banks is in variable condition, such as variable defence height, some defences being built on and vegetation growth within the banks. These factors could be flood risk factors, however, in this case the tree falling and causing a breach of the flood embankment was an important factor, as the defences themselves were never observed or recorded as overtopping. It was fortuitous that the breach did not occur earlier in the night, when the river peaked at 22:30.

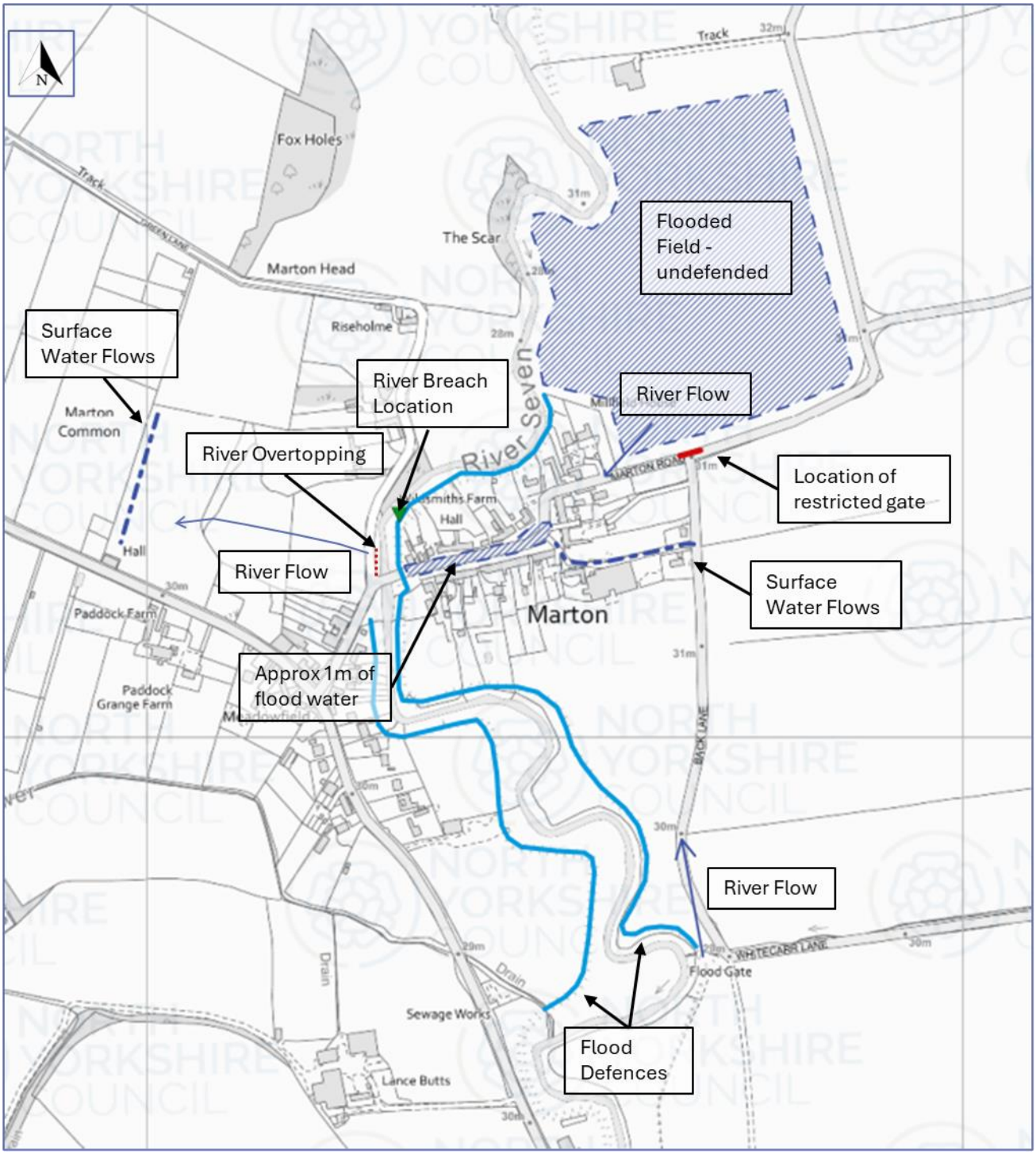


Figure 16 Map detailing observed events in Marton

15. Recommendations

The following recommendations are made in accordance with the North Yorkshire Council Flood Risk Strategy and have been created from the conclusions of this report:

General:

1) The LLFA to continue to deliver the existing property flood resilience scheme that will benefit properties in Keldholme, Kirkby Mills and Sinnington.
2) All risk management authorities to continue responsive engagement and service within the villages.
3) Environment Agency to continue engagement and increase education regarding the flood warning system and landowner and homeowner responsibilities.

Kirkby Mills:

1) North Yorkshire Council Highways and Yorkshire Water to jointly investigate the drainage system north of the A170, focusing on interactions between the Yorkshire Water network, highway gullies, and the river near the Mill, and assess the potential benefit of installing a non-return valve at the outfall.
2) North Yorkshire Council Bridges team and landowners to de-silt and regularly monitor the bridge to maintain flow capacity and reduce flood risk.
3) Yorkshire Water to assess how the Combined Sewer Overflow affects river channel capacity and contributes to flood risk.
4) Yorkshire Water to investigate power failure of pumping station and configure plan to avoid it happening in the future Environment Agency to engage riparian landowners to raise awareness of their responsibilities and take enforcement action on unconsented works, including the weir and Mill Race.

Keldholme:

1) North Yorkshire Council Bridges as part of Local Highway Authority to continue to monitor silt levels under Keldholme Bridge.
2) North Yorkshire Council as Local Highway Authority and LLFA to explore opportunities reduce Surface Water flow impacts on the Highway from the East.

Sinnington:

1) North Yorkshire Council to work with landowners on riparian responsibility and engage in the education of surface water flow management.
2) North Yorkshire Council to explore maintaining the existing flow pathway on Main Street at Land Adjacent to Riverdell is maintained in the event of any future proposals to develop the land.
3) North Yorkshire Council Resilience and Emergencies Team to assist in setting up a community action group with the assistance of Sinnington Parish Council.

4) Environment Agency to investigate land levels on the right bank upstream of the A170 to assess whether any reinstatement of the flow path is required.

Marton:

1) Environment Agency to review flood defence and tree management regime, work with landowners on educating riparian responsibility and undertake enforcement where needed.
2) Environment Agency to submit funding bids to further repair the breach and carry out other maintenance of the flood embankments and river channel where a business case for investment can be made and where funding is available. This includes bank surveys to assess for low spots, embankment repairs and tree and vegetation clearance to aid conveyance.
3) Yorkshire Water to demonstrate how separating out the surface water from the Combined system won't increase surface water flood risk if the river level is high and reduce bad connections as an output of the CCTV survey.
4) North Yorkshire Council Resilience and Emergencies Team to help set up a community action group with the assistance of Marton Parish.

16. Appendices

11.1 Useful contacts and links

1) Flood Forecasting Centre

The Flood Forecasting Centre (FFC) is a partnership between the Environment Agency and the Met Office, combining our meteorology and hydrology expertise into a specialised hydrometeorology service. The centre forecasts for all natural forms of flooding - river, surface water, tidal/coastal and groundwater.

Flood Forecasting Centre - GOV.UK

2) Online Flood Risk Mapping

This service uses computer models to assess an area's long term flood risk from rivers, the sea, surface water and some groundwater.

https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

3) National Flood Forum

A charity to help, support and represent people at risk of flooding.

https://nationalfloodforum.org.uk/

4) North Yorkshire Local Resilience Forum

NYLRF is a partnership of local agencies working together to prepare for, respond to and recover from potential major incidents and emergencies via the duties stated in the Civil Contingencies Act 2004 (CCA).

http://www.emergencynorthyorks.gov.uk/

5) NYC Resilience & Emergencies Unit

The resilience and emergencies unit is responsible for planning for a wide variety of potential incidents and emergencies that could affect the population of North Yorkshire.

https://www.northyorks.gov.uk/resilience-and-emergencies-unit

6) NYC Flood & Water Management

As lead local flood authority, we investigate and assess flood risks, including flooding from surface water, groundwater and existing watercourses. We work with partners involved in flood and water management to protect communities from the impact of flooding.

https://www.northyorks.gov.uk/flood-and-water-management

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Initial equality impact assessment screening form
This form records a equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.

Directorate	Environment
Service area	Highways and Transportation
Proposal being screened	Section 19 Investigation Report on the 7th December 2024 Flood Event in the Rye Villages of Kirkby Mills, Keldholme, Sinnington and Marton
Officer(s) carrying out screening	Heather Lagan
What are you proposing to do?	That North Yorkshire Council, in its capacity as Lead Local Flood Authority publishes a formal report on the events of 7th December 2024 Flood Event in the Rye Villages of Kirkby Mills, Keldholme, Sinnington and Marton, examining the action taken by risk management authorities following the flood events
Why are you proposing this? What are the desired outcomes?	North Yorkshire Council has a statutory duty to investigate flood events, bestowed by the Flood and Water Management Act (2010). The NY Flood Risk Strategy determines the criteria for undertaking and publishing a formal investigation under the FWMA (2010), and the 7th December 2024 flood event justifies this action according to the criteria
Does the proposal involve a significant commitment or removal of resources? Please give details.	There is no financial implication arising from the publication of the report

Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYC's additional agreed characteristics

As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be an adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your directorate representative for advice if you are in any doubt.

Protected characteristic	**Potential for adverse impact**		**Don't know/No info available**
	Yes	**No**	
Age		No	
Disability		No	
Sex		No	
Race		No	
Sexual orientation		No	
Gender reassignment		No	
Religion or belief		No	
Pregnancy or maternity		No	
Marriage or civil partnership		No	

People in rural areas		No		
People on a low income		No		
Carer (unpaid family or friend)		No		
Are from the Armed Forces Community		No		
Does the proposal relate to an area where there are known inequalities/probable impacts (for example, disabled people's access to public transport)? Please give details.	No			
Will the proposal have a significant effect on how other organisations operate? (for example, partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	**No**			
Decision (Please tick one option)	EIA not relevant or proportionate:	ü	Continue to full EIA:	
Reason for decision	The content of the flood investigation reports is technical in nature, and therefore does not have the ability to impact differently upon any protected characteristics. Any action which may arise from the event similarly relates to the physicality of the location and its associated flood risk, rather than being a decision which may be accessed differently or would have different implications depending on any protected characteristics an individual may have.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	11/12/2025			

Initial Climate Change Impact Assessment

The intention of this document is to help the council to gain an initial understanding of the impact of a project or decision on the environment. This document should be completed in consultation with the supporting guidance. Dependent on this initial assessment you may need to go on to complete a full Climate Change Impact Assessment. The final document will be published as part of the decision-making process.
If you have any additional queries, which are not covered by the guidance please email climatechange@northyorks.gov.uk

Title of proposal	Section 19 Investigation Report on the 07 December 2024 affecting Kirkby Mills, Keldholme, Sinnington and Marton.
Brief description of proposal	That North Yorkshire Council, in its capacity as Lead Local Flood Authority publishes a formal report on the events on 07 December 2024 affecting Kirkby Mills, Keldholme, Sinnington and Marton, examining the action taken by risk management authorities following the flood events
Directorate	Environment
Service area	Highways and Transportation
Lead officer	Heather Lagan
Names and roles of other people involved in carrying out the impact assessment	John Ward-Campbell

The chart below contains the main environmental factors to consider in your initial assessment – choose the appropriate option from the drop-down list for each one.

Remember to think about the following.

- Travel
- Construction
- Data storage
- Use of buildings
- Change of land use
- Opportunities for recycling and reuse

Environmental factor to consider	For the council	For the county	Overall
Greenhouse gas emissions	No effect on emissions	No Effect on emissions	No effect on emissions
Waste	No effect on waste	No effect on waste	No effect on waste
Water use	No effect on water usage	No effect on water usage	No effect on water usage
Pollution (air, land, water, noise, light)	No effect on pollution	No effect on pollution	No effect on pollution
Resilience to adverse weather/climate events (flooding, drought etc)	Increases resilience	Increases resilience	Increases resilience
Ecological effects (biodiversity, loss of habitat etc)	No effect on ecology	No effect on ecology	No effect on ecology
Heritage and landscape	No effect on heritage and landscape	No effect on heritage and landscape	No effect on heritage and landscape

If any of these factors are likely to result in a negative or positive environmental impact, then a full climate change impact assessment will be required. It is important that we capture information about both positive and negative impacts to aid the council in calculating its carbon footprint and environmental impact.

Decision (Please tick one option)	Full CCIA not relevant or proportionate:	x	Continue to full CCIA:	
Reason for decision	This is a statutory duty that is placed on NYC. The report provides a factual narrative of the events of 07 December 2024. Each of the recommendations will require further assessment when the scope and brief of each recommendation is understood at the time of implementation.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	11/12/2025			

North Yorkshire Council

Environment Executive Members

19 December 2025

Joining the National Parking Platform or procuring a single App for North Yorkshire

Report of the Assistant Director – Highways and Infrastructure

1.0 PURPOSE OF REPORT

1.1 To seek authority from the Corporate Director Environment in consultation with the Executive Member for Highways and Transportation to proceed with the procurement of a single mobile parking app provider for North Yorkshire, in line with the Council's adopted Parking Principles and the ongoing requirement to deliver operational savings and efficiencies.

2.0 BACKGROUND

2.1 Parking Services currently manages multiple app providers across the county, resulting in inconsistency for users and inefficiencies in administration. The legacy arrangements, inherited from former district and borough councils, do not align with the Council's strategic Parking Principles, which emphasise consistency, accessibility, efficiency, innovation, and value for money.

3.0 DETAILED PRESENTATION OF THE SUBSTANTIVE ISSUE

3.1 The North Yorkshire Council Parking Principles were formally adopted by the Executive on 17 August 2025, following earlier consideration by Environment Executive Members in January 2025. These principles provide the overarching framework for parking strategy and management across the county, aligning with the Local Transport Plan and supporting consistent policy development.

3.2 The Council's parking strategy is underpinned by the following principles:

- Consistency: Provide a uniform experience for residents and visitors across all districts.
- Accessibility: Ensure payment options are simple, inclusive, and easy to use.
- Efficiency: Reduce administrative burden and improve financial reconciliation through streamlined processes.
- Innovation: Support digital solutions that enhance customer convenience and operational performance.
- Value for Money: Deliver cost-effective services while maintaining high standards of service delivery.

3.3 The intent is to procure a new, single app provider.

4.0 CONSULTATION UNDERTAKEN AND RESPONSES

4.1 This project has been developed through the Parking Transformation project group containing representatives from all relevant departments of the Council.

5.0 ALTERNATIVE OPTIONS CONSIDERED

5.1 The 'do nothing' option is not recommended as the current contracts for the apps have expired with no further option to extend.

5.2 The Council has considered joining the National Parking Platform (NPP**)** but decided against it at this stage due to:

- Lack of agreement on monthly payments to NYC.
- Increased workload managing multiple providers.
- Uncertainty around NPP's compatibility with NYC's finance systems.
- Manual reconciliation processes rather than API integration.
- The estimated annual cost is approximately £213k, based on volumes and tariffs from the past 12 months using the NPP percentage-based transaction model rather than a fixed fee. This approach would not generate savings compared to current arrangements and is projected to cost around £5,000 more.

6.0 FINANCIAL IMPLICATIONS

6.1 The current annual cost of operating multiple parking apps is approximately £208,000, with costs expected to rise as digital payments increase.

6.2 By running a competitive procurement, Parking Services aims to negotiate lower transaction rates and has the option to pass convenience fees to customers, potentially saving £70,000 per year based on current volumes.

6.3 The Council has considered joining the National Parking Platform (NPP), but this would not deliver savings and is projected to cost around £5,000 more annually than current arrangements.

6.4 Broader service transformation projects, including investment in new parking machines and infrastructure, are forecast to deliver ongoing savings of £587,000 per annum from 2026/27, supporting the Council's medium-term financial strategy.

6.5 While the new system may deliver up to £70,000 in annual savings compared to current costs, these savings are likely to be offset by the need to provide the app facility in additional areas. The proposal is therefore expected to be cost neutral overall, with the added benefit of a more consistent and accessible service across North Yorkshire. The allocated budget aligns with current spend, and any additional costs will be managed within the broader parking services budget. The council will continue to monitor costs closely as the tender process progresses.

7.0 LEGAL IMPLICATIONS

7.1 Procurement will be undertaken in accordance with the Procurement Act 2023 and the Council's Procurement and Contract Procedure Rules.

8.0 EQUALITIES IMPLICATIONS

8.1 An Equality Impact Assessment (EIA) screening has been undertaken for the proposal to procure a single mobile parking app provider. The screening considered the potential impacts on people with protected characteristics and identified key considerations around digital inclusion and accessibility, particularly for older people, those with disabilities, people on low incomes, and residents in rural areas. The proposal ensures that alternative payment options (such as cash and contactless) will remain available to support inclusivity. A full EIA will be completed to ensure that no group is disadvantaged and that appropriate mitigation measures are identified and implemented. The Full EIA is included at Appendix A

9.0 CLIMATE CHANGE IMPLICATIONS

9.1 There are no climate issues in this statutory process. A climate change implications assessment is at Appendix B.

10.0 PERFORMANCE IMPLICATIONS

10.1 Parking Services has been restructured to run more efficiently, and adopting a single app aligns with this goal. It will simplify processes, reduce duplication, and improve compliance with traffic orders.

11.0 POLICY IMPLICATIONS

11.1 The North Yorkshire Parking Principles guide the decision to consolidate multiple providers into a single app solution.

12.0 ICT IMPLICATIONS

12.1 Standardising to a single, cloud-based parking app will streamline ICT support and reduce the need for on-premises infrastructure. The new system must integrate with council finance, enforcement, and permit systems, and support open APIs for future interoperability. The app must comply with all relevant data protection, payment security, and accessibility standards. While centralising support and maintenance will bring efficiencies, robust vendor management and clear change management processes are essential. The solution should be scalable and future-proof, enabling the council to adopt new technologies and respond to evolving service needs.

13.0 CONCLUSIONS

13.1 The current fragmented approach to mobile parking apps is inefficient and inconsistent with the Council's strategic objectives. Procuring a single provider will deliver operational savings, improve the customer experience, and support the Council's broader transformation agenda. This change will also facilitate better integration with permit systems and ensure compliance with relevant legal, financial, and ICT requirements.

14.0 REASONS FOR RECOMMENDATIONS

14.1 A single mobile parking app provider will:

- Deliver a consistent and accessible service for all users.
- Reduce administrative overhead and improve financial management.
- Enable the Council to realise significant cost savings and operational efficiencies.
- Support the Council's digital transformation and future-proof parking services.
- Integrate seamlessly with permit systems, enforcement, and payment platforms.

15.0 RECOMMENDATION

15.1 Following consultation with the Executive Member for Highways and Transportation, the Corporate Director for Environment is recommended to approve the proposal to proceed with the procurement of a single mobile parking app provider for North Yorkshire.

APPENDICES:
Appendix A – Full EIA
Appendix B – Climate Change Assessment

BACKGROUND DOCUMENTS: N/A

Barrie Mason
Assistant Director – Highways & Infrastructure
County Hall
Northallerton
19 December 2025

Report Author – Jane Wilson
Presenter of Report – Steve Brown Head of Parking Services

Equality impact assessment (EIA) form: evidencing paying due regard to protected characteristics

(Form updated October 2023)

NYC Parking App Solution

If you would like this information in another language or format such as Braille, large print or audio, please contact the Communications Unit on 01609 53 2013 or email communications@northyorks.gov.uk.

যদি আপনি এই ডকুমেন্ট অন্য ভাষায় বা ফরমেটে চান, তাহলে দয়া করে আমাদেরকে বলুন।

如欲索取以另一語文印製或另一格式製作的資料，請與我們聯絡。

اگر آپ کو معلومات کسی دیگر زبان یا دیگر شکل میں درکار ہوں تو برائے مہربانی ہم سے پوچھئے۔

Equality Impact Assessments (EIAs) are public documents. EIAs accompanying reports going to County Councillors for decisions are published with the committee papers on our website and are available in hard copy at the relevant meeting. To help people to find completed EIAs we also publish them in the Equality and Diversity section of our website. This will help people to see for themselves how we have paid due regard in order to meet statutory requirements.

Name of Directorate and Service Area	Environment – Parking Services
Lead Officer and contact details	Jane Wilson
Names and roles of other people involved in carrying out the EIA	Jane Wilson/Jenny Knowles
How will you pay due regard? e.g. working group, individual officer	
When did the due regard process start?	27/11/25

Section 1. Please describe briefly what this EIA is about. (e.g. are you starting a new service, changing how you do something, stopping doing something?)

As part of a programme within the convergence portfolio we have a number of parking projects being completed to improve the customer experience and future proof the parking service. Thi EEIA is to cover the option for a single Parking app solution. We currently have 3 different parking apps that don't cover the whole of North Yorkshire. Following on from LGR the service have decided to update the machines used across North Yorkshire to provide access to the whole of North Yorkshire both in rural and locality areas with the ability to provide information to other software solutions to provide real-time parking session information.

This will enable customer to have the choice of paying by cash, contactless and via an app which will cover all aspects of customer choice.

In order to make savings across the council the aim is to go ticketless which is a change for the customer in North Yorkshire.

Section 2. Why is this being proposed? What are the aims? What does the authority hope to achieve by it? (e.g. to save money, meet increased demand, do things in a better way.)

This proposal aims to modernise and streamline parking services across North Yorkshire by introducing a single, unified parking app solution. The key objectives are:

- **To improve the customer experience** by providing a consistent and accessible way to pay for parking across the entire region, including both rural and urban areas.
- **To increase efficiency** by replacing multiple existing apps with one solution, reducing confusion and making it easier for customers to access parking services.
- **To future-proof the service** by upgrading payment machines and integrating real-time parking session information with other software solutions.
- **To offer greater choice** by enabling customers to pay by cash, contactless, or via the app, ensuring inclusivity for all users.
- **To support council savings** by moving towards a ticketless system, which will reduce operational costs and environmental impact.

Overall, the authority hopes to deliver a more user-friendly, efficient, and sustainable parking service that meets the needs of residents and visitors, while also achieving cost savings and operational improvements

Section 3. What will change? What will be different for customers and/or staff?

With the introduction of a single parking app and upgraded payment machines across North Yorkshire, several changes will take place:

- **Unified Payment System:** Customers will be able to use one app to pay for parking anywhere in North Yorkshire, replacing the current system of multiple apps that do not cover all areas.
- **More Payment Options:** Customers will have the flexibility to pay by cash, contactless card, or via the new app, catering to a wider range of preferences and needs.
- **Ticketless Parking:** The move towards a ticketless system means customers will no longer need to display a physical ticket, streamlining the parking process and reducing paper waste.
- **Real-Time Information:** The new system will provide real-time parking session data, improving enforcement and customer service.
- **Staff Processes:** Staff will need to adapt to new technology and processes, including managing the new app, upgraded machines, and handling customer queries related to the changes.
- **Consistent Customer Experience:** The changes will create a more consistent and accessible parking experience for all users, regardless of location.

These changes are designed to make parking easier, more efficient, and environmentally friendly for both customers and staff.

Section 4. Involvement and consultation (What involvement and consultation has been done regarding the proposal and what are the results? What consultation will be needed and how will it be done?)

To ensure the proposed changes are inclusive and meet the needs of all users, the following involvement and consultation activities have been undertaken or are planned:

- **Regular Communications Meetings:** Ongoing meetings with internal stakeholders to discuss the proposed changes, gather feedback, and plan effective communication strategies.
- **Customer Consultation:** A formal consultation period will be provided as part of the process to amend the Traffic Regulation Order (TRO). This will allow customers and the wider public to comment on the proposed changes before implementation.
- **Engagement with Staff:** Staff have been involved in discussions about the new system and will continue to be consulted to ensure a smooth transition and address any operational concerns.
- **Feedback Channels:** Customers will be able to provide feedback through established channels, including online forms, email, and customer service contacts.
- **Accessibility Considerations:** Consultation will include engagement with groups representing people with protected characteristics to ensure the new system is accessible and does not disadvantage any users.

The results of these consultations will be used to inform the final implementation and ensure that any concerns are addressed.

Section 5. What impact will this proposal have on council budgets? Will it be cost neutral, have increased cost or reduce costs?

While the new system may deliver up to £70,000 in annual savings compared to current costs, these savings are likely to be offset by the need to provide the app facility in additional areas. The proposal is therefore expected to be cost neutral overall, with the added benefit of a more consistent and accessible service across North Yorkshire. The allocated budget aligns with current spend, and any additional costs will be managed within the broader parking services budget. The council will continue to monitor costs closely as the tender process progresses.

Section 6. How will this proposal affect people with protected characteristics?	**No impact**	**Make things better**	**Make things worse**	**Why will it have this effect? Provide evidence from engagement, consultation and/or service user data or demographic information etc.**
Age	x			The proposal offers multiple payment options (cash, contactless, app), ensuring that those who may not be comfortable with digital technology can still pay by cash. This helps to avoid disadvantaging older customers or those less familiar with smartphones.
Disability	x			The new machines and app will be designed to meet accessibility standards, including features such as clear instructions, tactile buttons, and compatibility with screen readers. This should improve the experience for customers with disabilities. Giving choice not to just pay via an app.
Sex	x			No adverse impact is anticipated for these groups, as the changes are designed to be universally accessible and do not affect service provision based on these characteristics.
Race	x			As Above
Gender reassignment	x			As Above
Sexual orientation	x			As Above
Religion or belief	x			As Above

Pregnancy or maternity	x			As Above
Marriage or civil partnership	x			As Above

Section 7. How will this proposal affect people who…	**No impact**	**Make things better**	**Make things worse**	**Why will it have this effect? Provide evidence from engagement, consultation and/or service user data or demographic information etc.**
live in a rural area?	x			The new parking system is designed to cover all areas of North Yorkshire, including rural locations that may previously have had limited access to digital payment options. By upgrading machines and offering multiple payment methods (cash, contactless, app), the proposal aims to ensure rural residents are not disadvantaged and have the same level of service as those in urban areas.
have a low income?	x			By retaining cash payment as an option, the proposal ensures that individuals without access to banking or digital technology are not excluded. This helps to prevent financial barriers to parking and supports inclusivity for those on lower incomes.
are carers (unpaid family or friend)?	x			The simplified and unified parking system, with clear payment options and real-time information, may make it easier for carers to manage parking when supporting others, reducing stress and saving time.
are from the Armed Forces Community	x			No specific adverse impact is anticipated for members of the Armed Forces Community. The system is designed to be accessible and user-friendly for all, regardless of background.

Section 8. Geographic impact – Please detail where the impact will be (please tick all that apply)	
North Yorkshire wide	x
Craven	
Hambleton	
Harrogate	
Richmondshire	
Ryedale	
Scarborough	
Selby	
If you have ticked one or more areas, will specific town(s)/village(s) be particularly impacted? If so, please specify below.	

Section 9. Will the proposal affect anyone more because of a combination of protected characteristics? (e.g. older women or young gay men) **State what you think the effect may be and why, providing evidence from engagement, consultation and/or service user data or demographic information etc.**

At this stage, no specific adverse impacts have been identified for individuals with a combination of protected characteristics. The proposal is designed to be inclusive, offering multiple payment options (cash, contactless, app) and ensuring accessibility for all users.
However, it is recognised that some groups—such as older people with disabilities, or individuals with low income who may also have limited digital access—could face additional barriers if changes are not implemented with care. To mitigate this, the council will:

- Continue to offer cash payment alongside digital options.
- Ensure all new machines and the app meet accessibility standards.
- Monitor feedback from consultation and engagement activities to identify any unforeseen impacts on people with intersecting protected characteristics.
- Make reasonable adjustments as needed to ensure equitable access.

Ongoing engagement and monitoring will help ensure that the needs of people with multiple protected characteristics are considered and addressed throughout implementation.

Section 10. Next steps to address the anticipated impact. Select one of the following options and explain why this has been chosen. (**Remember:** we have an anticipatory duty to make reasonable adjustments so that disabled people can access services and work for us)	**Tick option chosen**
1. No adverse impact - no major change needed to the proposal. There is no potential for discrimination or adverse impact identified.	**x**
2. **Adverse impact - adjust the proposal -** The EIA identifies potential problems or missed opportunities. We will change our proposal to reduce or remove these adverse impacts, or we will achieve our aim in another way which will not make things worse for people.	
3. Adverse impact - continue the proposal - The EIA identifies potential problems or missed opportunities. We cannot change our proposal to reduce or remove these adverse impacts, nor can we achieve our aim in another way which will not make things worse for people. (There must be compelling reasons for continuing with proposals which will have the most adverse impacts. Get advice from Legal Services)	
4. Actual or potential unlawful discrimination - stop and remove the proposal – The EIA identifies actual or potential unlawful discrimination. It must be stopped.	

Explanation of why option has been chosen. (Include any advice given by Legal Services.)

The proposal has been designed to be inclusive and accessible, with multiple payment options (cash, contactless, app) and upgraded machines that meet accessibility standards. Consultation and engagement activities have not identified any significant adverse impacts on people with protected characteristics or those with intersecting characteristics. Ongoing monitoring and feedback mechanisms will be in place to ensure that any unforeseen issues are identified and addressed promptly. Reasonable adjustments will be made as required to ensure equitable access for all users.
If, during implementation or through further consultation, any adverse impacts are identified, the proposal will be reviewed and adjusted as necessary to mitigate these effects.

Section 11. If the proposal is to be implemented how will you find out how it is really affecting people? (How will you monitor and review the changes?)

To ensure the proposal is having the intended positive impact and to identify any unforeseen issues, the following monitoring and review processes will be put in place:

- **Ongoing Feedback Collection:** Customers and staff will be encouraged to provide feedback through established channels such as online forms, email, and customer service contacts.
- **Regular Review Meetings:** The project team will hold regular meetings to review feedback, monitor usage data, and assess any reported issues or barriers.
- **Analysis of Usage Data:** Data from the new parking app and payment machines will be analysed to identify trends, uptake, and any areas where users may be experiencing difficulties.
- **Engagement with Representative Groups:** Continued engagement with groups representing people with protected characteristics will help ensure the system remains accessible and inclusive.
- **Post-Implementation Review:** A formal review will be conducted after implementation to assess the overall impact, including any unintended consequences, and to identify further improvements if needed.
- **Reporting:** Findings from monitoring and review activities will be reported to senior management and used to inform any necessary adjustments to the service.

These measures will help ensure that the changes are effective, inclusive, and responsive to the needs of all users.

Section 12. Action plan. List any actions you need to take which have been identified in this EIA, including post implementation review to find out how the outcomes have been achieved in practice and what impacts there have actually been on people with protected characteristics.

Action	Lead	By when	Progress	Monitoring arrangements
Communicate changes to customers and staff through multiple channels	Jane Wilson	Before launch	In progress	Review feedback and queries post-launch
Ensure new machines and app meet accessibility standards	Jane Wilson	Before rollout	Ongoing	Accessibility testing and user feedback
Provide training for staff on new systems and customer support	Jane Wilson	Before rollout	Planned	Staff feedback and training completion rates
Collect and analyse feedback from customers, including those with protected characteristics	Jane Wilson	Ongoing	To begin at launch	Regular review meetings and feedback reports
Conduct post-implementation review to assess impact and identify improvements	Jane Wilson	6 months post-launch	Scheduled	Formal review and report to management

Section 13. Summary Summarise the findings of your EIA, including impacts, recommendation in relation to addressing impacts, including any legal advice, and next steps. This summary should be used as part of the report to the decision maker.

This Equality Impact Assessment has reviewed the proposed introduction of a unified parking app and upgraded payment machines across North Yorkshire. The assessment finds that the proposal is designed to be inclusive, offering multiple payment options (cash, contactless, app) to ensure accessibility for all users, including those with protected characteristics and those living in rural areas or on low incomes.
Consultation and engagement activities have been planned to gather feedback from customers, staff, and representative groups. No significant adverse impacts have been identified at this stage. The proposal is expected to deliver a more consistent and user-friendly parking experience, operational efficiencies, and long-term cost savings for the council.
Ongoing monitoring and review processes will be implemented to ensure that any unforeseen issues are identified and addressed promptly. Reasonable adjustments will be made as required to maintain equitable access. The findings and recommendations from this EIA will inform the final implementation and any necessary adjustments to the proposal.

Section 14. Sign off section

This full EIA was completed by:

Name: Jane Wilson
Job title: Parking Policy and Technical Operations Manager
Directorate: Environment
Signature:

Completion date: 27/11/25

Authorised by relevant Assistant Director (signature): Barrie Mason

Date: 11/12/2025

Climate change impact assessment

The purpose of this assessment is to help us understand the likely impacts of our decisions on the environment of North Yorkshire and on our aspiration to achieve net carbon neutrality by 2030, or as close to that date as possible. The intention is to mitigate negative effects and identify projects which will have positive effects.

This document should be completed in consultation with the supporting guidance. The final document will be published as part of the decision making process and should be written in Plain English.

If you have any additional queries which are not covered by the guidance, please email climatechange@northyorks.gov.uk

Version 2: amended 11 August 2021

Please note: You may not need to undertake this assessment if your proposal will be subject to any of the following:
Planning Permission
Environmental Impact Assessment
Strategic Environmental Assessment

However, you will still need to summarise your findings in the summary section of the form below.

Please contact climatechange@northyorks.gov.uk for advice.

Title of proposal	**NYC Parking app solution**
Brief description of proposal	**To procure a single mobile parking app provider for North Yorkshire**
Directorate	**Environment**
Service area	**Parking Services**
Lead officer	**Steve Brown**
Names and roles of other people involved in carrying out the impact assessment	**Jane Wilson Parking Policy and Technical Operations Manager**
Date impact assessment started	**28/09/2025**

Options appraisal
Were any other options considered in trying to achieve the aim of this project? If so, please give brief details and explain why alternative options were not progressed.

Options considered:

Do nothing: Not viable—current contracts have expired and continuing would be inefficient.
Join National Parking Platform (NPP): Rejected due to higher costs, increased admin workload, and integration issues with council systems.

A single app provider offers greater efficiency, cost savings, and aligns with council objective. It will streamline operations, reduce resource use, and support digital transformation. This approach is expected to minimise environmental impact, improve efficiency, and better align with the council's climate objectives.

What impact will this proposal have on council budgets? Will it be cost neutral, have increased cost or reduce costs?

Please explain briefly why this will be the result, detailing estimated savings or costs where this is possible.

While the new system may deliver up to £70,000 in annual savings compared to current costs, these savings are likely to be offset by the need to provide the app facility in additional areas. The proposal is therefore expected to be cost neutral overall, with the added benefit of a more consistent and accessible service across North Yorkshire. The allocated budget aligns with current spend, and any additional costs will be managed within the broader parking services budget. The council will continue to monitor costs closely as the tender process progresses.

How will this proposal impact on the environment? N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.		Positive impact (Place a X in the box below where relevant)	No impact (Place a X in the box below where relevant)	Negative impact (Place a X in the box below where relevant)	Explain why will it have this effect and over what timescale? Where possible/relevant please include: • Changes over and above business as usual • Evidence or measurement of effect • Figures for CO_2e • Links to relevant documents	Explain how you plan to mitigate any negative impacts.	Explain how you plan to improve any positive outcomes as far as possible.
Minimise **greenhouse gas emissions** e.g. reducing emissions from travel, increasing energy efficiencies etc.	Emissions from travel	x			**Research shows that up to 30% of urban traffic is caused by drivers circling in search of a parking space. This unnecessary driving increases fuel consumption and emissions. Parking apps provide real-time information on available spaces, guiding drivers directly to a spot and reducing the time spent driving and idling**		
	Emissions from construction		x				
	Emissions from running of buildings		x				
	Emissions from data storage		x				
	Other		x				

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**	**Positive impact** (Place a X in the box below where	**No impact** (Place a X in the box below where	**Negative impact** (Place a X in the box below where	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Minimise **waste:** Reduce, reuse, recycle and compost e.g. reducing use of single use plastic		**x**				
Reduce **water** consumption		**x**				
Minimise **pollution** (including air, land, water, light and noise)		**x**				
Ensure **resilience** to the effects of climate change e.g. reducing flood risk, mitigating effects of drier, hotter summers		**x**				
Enhance **conservation** and wildlife		**x**				

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**	**Positive impact** (Place a X in the box below where	**No impact** (Place a X in the box below where	**Negative impact** (Place a X in the box below where	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Safeguard the distinctive characteristics, features and special qualities of **North Yorkshire's landscape**		**x**				
Other (please state below)		**x**				

Are there any recognised good practice environmental standards in relation to this proposal? If so, please detail how this proposal meets those standards.
The project supports the Council's net zero ambitions by reducing emissions from travel, streamlining operations, and future-proofing parking services

Summary Summarise the findings of your impact assessment, including impacts, the recommendation in relation to addressing impacts, including any legal advice, and next steps. This summary should be used as part of the report to the decision maker.

The proposal to procure a single parking app provider will streamline operations, reduce resource use, and help lower greenhouse gas emissions by reducing unnecessary travel. It is cost neutral, aligns with legal requirements, and supports the council's net zero ambitions

Sign off section

This climate change impact assessment was completed by:

Name	**Jane Wilson**
Job title	**Parking Policy and Technical Operations Manager**
Service area	**Parking Services**
Directorate	**Environment**
Signature	**Jane Wilson**
Completion date	**28/10/2025**

Authorised by relevant Assistant Director (signature): Barrie Mason

Date: 11/12/2025

North Yorkshire Council

Environment Executive Members

19 December 2025

Additional Environment Agency Local Levy Funding for the Upper Dales Flood Alleviation Scheme

Report of Assistant Director Highways and Infrastructure

1.0 PURPOSE OF REPORT

1.1 To update the Corporate Director, Environment and Executive Members for Highways and Transportation on the progress of the funding applications to support the Upper Dales Flood Alleviation scheme.

1.2 To request approval from the Corporate Director, Environment in consultation with the Chief Finance Officer, sub-delegated to, Assistant Director Resources, to:

- Submit an application for the total sum of £219,370 from the available Flood and Coastal Committee Local Levy.

2.0 BACKGROUND

2.1 As a Flood Risk Management Authority (RMA), North Yorkshire Council can apply for national Grant in Aid (GiA) funding through the Environment Agency (EA) to better protect properties from flooding. RMAs make applications to the EA for funding to be allocated and profiled into the Medium-Term Plan (MTP) ready to be drawn down subject to business case approval. GiA therefore forms an important funding stream that NYC use to supplement and match fund its capital flood programme. The current MTP programme was due to run until March 2027.

2.2 On 09 August 2024, the Environment Executive Members provided approval to apply for the Environment Agency Grant in Aid funding and the Flood and Coastal Committee Local Levy funding to support the Upper Dales Flood Alleviation Schemes (Appendix A). A breakdown of the funding allocated to each scheme is provided in Table 1 below.

Table 1. Original approved funding bids agreed by Committee

Project title	NYC	Grant in Aid	Local Levy
P1. Wensleydale	£97,500	£168,483	£58,017
P2. Leyburn	£107,250	£143,910	£88,940
P3. Leyburn & Redmire	£74,750	£82,185	£100,666
P4. Leyburn 3	£100,750	£115,915	£110,035
P5. West Witton & Spennithorne	£47,618	£103,382	£47,618
P6. Reeth	£70,913	£138,637	£70,913
P7. Upper Dales	£106,700	£120,700	£106,700
Total	£650,000	£873,212	£582,889

2.3 The Environment Agency undertake an annual programme refresh to update the allocations throughout the 6-year programme. This annual refresh usually occurs in April/May each year. The allocations for 2025/26 and 2026/27 were previously approved by a reset programme business case submitted by the EA and approved by HM Treasury in February 2024. The FCRM funding for 2025/26 has since been agreed through the Spending Review 2024 and the previous settlement revised, the consequence of which is less funding now being allocated than originally allocated for 2025/26.

2.4 With Ministerial direction, £72million from the FCRM Investment Programme has been diverted to support the maintenance of existing Environment Agency assets. This means, collectively GiA cannot fund all the previously planned work in 2025/26.

2.5 To allow a clean break in the funding cycle to reflect the new funding rules and reflecting a national overspend, the EA have shortened the current 6-year programme which was due to expire in 2026/27 to 2025/26. Schemes with allocations in 2026/27 have therefore been removed from the programme altogether resulting in a 50% reduction in available GiA in the Yorkshire region.

2.6 At the March 2025 Yorkshire Regional and Coastal Committee (YRFCC) meetings, whilst acknowledging the uncomfortable position of the indicative allocations, the RFCC members endorsed a programme of significantly reduced allocations, recognising the need for those projects currently in progress to receive their funding. This is referred to as the 'local choices' process. This is an important step to ensure local priorities can be taken into consideration and we get the best possible outcomes from the programme both locally and nationally.

2.7 In March, the West Witton and Spennithorne scheme secured both Local Levy and Grant in Aid allocations, and a business case for drawing down funds for both is pending approval by the EA, we are making good progress to deliver this scheme in 2025/26.

2.8 Wensleydale, Reeth and Upper Dales schemes did not secure GiA in the local choices process and their allocations were removed, however at the time of the approval of the programme, all three schemes had live Local Levy bids and secured funding some for 2025/26. The GiA shortfall for the three schemes is £428k. Business cases are pending approval by the EA to draw down the Local Levy funds.

2.9 The Leyburn schemes did not receive an allocation of GiA and as such we did not pursue Local Levy bids and placed the schemes on hold. Uptake of the Leyburn schemes have to date been low, and whilst every endeavour has and will be made to increase those numbers, delaying the scheme to future years is a low-risk option, as there are no funding implications.

3.0 PROGRESS TO DATE

3.1 A total of 113 Properties have received their individual property survey.

3.2 NEC4 Contracts for the design and installation of the property flood resilience measures were signed in September 2025 with Watertight Limited.

3.3 To date 58 properties have had their design and installation survey completed.

3.4 The next stage of the project is installation of the property flood resilience measures.

4.0 2026/2027 GIA LOCAL CHOICES PROCESS

4.1 Throughout 2025, the government has made several announcements of record investment in flood risk management funding, most recently £4.6bn from April 2026 for three years and £10.5bn, again from April 2026 to align with the 10-year national infrastructure plan. It was the intention to continue to deliver the Upper Dales schemes and resubmit the GiA bids for 2026/27 omitting the three Leyburn schemes (P2, P3 and P4 in Table one) in order to fulfil the approved Local Levy funding obligations.

4.2 The 2026/27 indicative allocations for GiA funding were distributed ahead of the local choices process to NYC on 13 October 2025, for the programme to be approved by YRFCC in January 2026.

4.3 No indicative GiA allocations have been made for the Wensleydale, Reeth and Upper Dales schemes in 2026/27 as expected on the back of the recent government announcements and results in a continued £428k shortfall, not including Leyburn schemes. Furthermore, there is no firm commitment of when the funding would be made available again. This proves a challenge but is not fatal to the schemes.

4.4 Whilst no indicative GiA allocations have been made, there may be funding available as in-year GiA overprogramme. The overprogramme exists to provide headroom in the committed programme and is not published. The schemes would therefore be allocated funding but it's availability cannot be guaranteed if there is slippage in the published committed programme.

5.0 ALTERNATIVE OPTIONS CONSIDERED AND FINANCIAL IMPLICATIONS

5.1 Table 2 below considers options for the continued delivery of the schemes. The original funding allocation and the without Leyburn option assumes GiA is received, all other options omit the delivery of Leyburn schemes. The two options considered if GiA is not received consider the use of increased NYC contributions or the preferred option, to make additional Local Levy bids.

Table 2: Financial Implications of options to progress schemes

Funding Source	NYC				GiA				Levy				Total
Financial Year	24/25	25/26	26/27	Total	24/25	25/26	26/27	Total	24/25	25/26	26/27	Total	
Original Funding	£200,000	£250,000	£200,000	£650,000	£ -	£342,000	£531,000	£873,000	£ -	£283,248	£300,000	£583,248	£2,106,248
Wihout Leyburn	£ 75,000	£292,498	£ -	£367,498	£ -	£103,382	£427,820	£531,202	£ -	£283,248	£ -	£283,248	£1,181,948
Without additional Levy	£ 75,000	£375,000	£345,318	£795,318	£ -	£103,382	£ -	£103,382	£ -	£283,248	£ -	£283,248	£1,181,948
With additional Levy	£ 75,000	£375,000	£126,318	£576,318	£ -	£103,382	£ -	£103,382	£ -	£283,248	£219,000	£502,248	£1,181,948

5.2 Increased NYC Contributions - As discussed in paragraph 2.5 we will not progress Leyburn's schemes in 2026/27 but defer to future years. The NYC FRM Revenue Reserve contribution to the collective scheme including Leyburn schemes is £650k. Based on the curtailed programme not including Leyburn, the NYC contribution is reduced to £367k providing £283k to cover some of the reduced GiA. The remaining £145k deficit of the £428k identified paragraphs 2.5 and 4.5 could be covered by increasing NYCs overall contribution to £795k and can be accommodated within the FRM reserve as demonstrated in table three

5.3 We have identified that the shortfall can be underwritten by the first £100k of spend in each year being covered by the FRM base budget supplemented by the FRM Revenue Reserve in 2025/26 without significant detriment to the programme, other than to defer schemes to future years. Spend in future year will continue to be funded from the FRM base budget supplemented by the reserve until 2028/29 at which point it is fully committed

Table 3 – Flood Risk Management Budget with re-profiled flood reserve

OPERATIONAL COSTS	25/26	26/27	27/28	28/29	29/30	30/31	TOTAL
Base budget	1,086,100	1,086,100	1,086,100	1,086,100	1,086,100	1,086,100	6,516,600
present team costs	-504,200	-504,200	-504,200	-504,200	-504,200	-504,200	-3,025,200
levy commitment	-450,000	-450,000	-450,000	-450,000	-450,000	-450,000	-2,700,000
additional team costs - SAB introduction			-120,000	-120,000			-240,000
malton maintainance	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-90,000
Land Drainage Consents Incomve	3,500	3,500	3,500	3,500	3,500	3,500	21,000
officer pot	-20,000	-20,000	-20,000	-20,000	-20,000	-20,000	-120,000
total	100,400	100,400	-19,600	-19,600	100,400	100,400	362,400
PROJECTS	25/26	26/27	27/28	28/29	29/30	30/31	
RESERVE balance at start of FY	1,472,954	766,354	201,754	72,154	2,554	102,954	1,472,954
Rye villages	-317,000	-140,000					-457,000
Dales villages	-375,000	-345,000					-720,000
Hackness	-100,000						-100,000
Saxton	-15,000		-50,000	-50,000			-115,000
Flooding consultancy costs (Aug 2024 Gateway)		-110,000					-110,000
Great Ayton			-10,000				-10,000
Knaresborough		-50,000	-50000				-100,000
Swainby						-50,000	
South Craven		-20000					-20,000
Stokesley						-50,000	-50,000
Reserve Draw Down	-807,000	-665,000	-110,000	-50,000	0	-100,000	-1,732,000
Underspend against base	100,400	100,400	-19,600	-19,600	100,400	100,400	362,400
reserve balance at year end	766,354	201,754	72,154	2,554	102,954	103,354	
TOTAL							103,354

*Dales Villages line does not show a £75k spent in 2024/25

5.4 Additional Local Levy - Notwithstanding the above, it is possible to make a further request to the RFCC for additional funding of £219k. Based on the advice given by the EA at the time, and a sizeable contribution from NYC, the bids for the Local Levy was less than our eligibility under the Local Levy funding rules, our bids were considered conservative.

5.5 Under the criteria of the Flood and Coastal Committee Local Levy North Yorkshire are eligible for £5k per property. As the projects have progressed and greater confidence has emerged in delivery figures, table 4 below shows the difference between the original Local Levy funding request and the eligibility amount of funding that could have been available to us to apply.

Table 4: Additional Locally Levy Eligibility vs Local Levy Agreed

Project title	**Council contribution**	**Local Levy agreed**	**Total Local Levy eligibility**	**Additional Local Levy application**
P1. Wensleydale	£97,500	£58,017	£150,000	£91,983
P6. Reeth	£100,750	£70,913	£155,000	£84,087
P7. Upper Dales	£104,000	£106,700	£150,000	£43,300
Total	£302,250	£235,630	£455,000	£219,370

5.6 The additional £219k will reduce the shortfall of £428k to £209k which can comfortably be covered within the original £650k allocation without affecting the wider programme and leaving some contribution from NYC to cover the Leyburn schemes in the future.

5.7 In light of the GiA shortfall and the Local Levy positions, this paper seeks to obtain permission to bid for the remaining Local Levy eligibility

5.8 The local choices programme may add the three remaining schemes, but this is not guaranteed. If GiA is forthcoming through overprogramme the schemes can be delivered in their entirety, and we will return the additional funding requested to the same value as originally agreed in Table one.

6.0 FINANCIAL IMPLICATIONS

6.1 The estimated value of the four projects to be delivered by NYC is presently £1.1m. It is however important to stress that the scheme is essentially a package of works, and this value is an outline estimate, some elements being subject to third party agreement, and is therefore not definitive at this point in time.

6.2 There is £650k allocated in the flood risk management forward programme to the work in the Upper Dales over the next three years. There is presently £1,476,955.99 in the flood risk reserve as demonstrated in Table two.

6.3 If the funding bid for additional Levy is successful, NYC's Contribution would reduce from £650k to £576k, allowing funds to be directed to future Leyburn schemes.

7.0 LEGAL IMPLICATIONS

7.1 If the application to the Flood and Coastal Committee Local Levy is successful any Grant terms issued will be reviewed by Legal Services and if any of the Grant terms present an unacceptable risk for the Council then the Grant offer would be declined.

8.0 EQUALITIES IMPLICATIONS

8.1 The scheme benefits all those with protected characteristics by reducing the risk of surface water flooding in the Upper Dales and thereby the associated effects upon businesses, residential properties, the public health of the community living at flood risk and the associated economic growth of the area. The report was completed for the initial Environment Executive Report on the 09 August 2024. (See Appendix B).

9.0 CLIMATE CHANGE IMPLICATIONS

9.1 Flood mitigation offers positive benefits to resilience to future climate change projections. The proposals are anticipated to have a positive impact in response to climate change. The report was completed for the initial Environment Executive Report on the 9th of August 2024. (See Appendix C).

10.0 REASONS FOR RECOMMENDATIONS

10.1 Property Flood Resilience is offered to all eligible residents who meet the criteria, the identified properties have either flooded or been identified as high risk of flooding within the Environment Agency guidelines and the scheme will improve living conditions for those flooding has affected. The implementation of PFR (Property Flood Resilience) will offer piece of mind to residents that in adverse weather conditions their properties and themselves are protected.

10.2 It is therefore considered appropriate to continue with the scheme as intended, with regular relevant liaison through the engagement channels established as part of the scheme.

11.0 RECOMMENDATION

11.1 It is recommended that the Corporate Director, Environment in consultation with the Chief Finance Officer, sub-delegated to the Assistant Director Resources:

i. Authorises the submission of the additional application for £219,370 of the Flood and Coastal Committee Local Levy funding to enable the Upper Dales Flood Alleviation scheme development during 2025/26.

APPENDICES:

Appendix A Upper Dales Flood Alleviation Scheme Executive Committee Report 09 August 2024
Appendix B EIA Screening Form
Appendix C Climate Change Impact Assessment

BACKGROUND DOCUMENTS None

Barrie Mason
Assistant Director Highways & Infrastructure
Environment Directorate
County Hall
Northallerton
19 December 2025

Report Author: Patricia Gourley, Flood Risk Management Project Manager
Presenter of Report: Meirion Jones, Lead Local Flood Authority Team Leader

North Yorkshire Council

Resources and Environment Executive Members

09 August 2024

Upper Dales Flood Alleviation Scheme

Report of the Assistant Director – Highways and Transportation, Parking Services, Street Scene, Parks and Grounds

1.0 PURPOSE OF REPORT

1.1 To update the Corporate Director, Environment and the Executive Member for Highways and Transportation on the progress to date concerning the development of the business case to support the Upper Dales Flood Alleviation scheme.

1.2 To request approval from the Chief Finance Officer, in consultation with the Deputy Leader and Executive Member for Finance and Resources and the Executive Member for Highways and Transportation for:

- NYC to lead on the future delivery of the scheme.
- NYC to offer a contribution of £650k over 2024/25 2025/26 and 2026/27

1.3 To request approval from the Chief Finance Officer, in consultation with the Deputy Leader and Executive Member for Finance and Resources and the Executive Member for Highways and Transportation for the following;

i. To submit an application for £873,212 of the available Environment Agency Flood Defence Grant in Aid funding to enable scheme development through 2024/25
ii. To submit an application for £582,889 of the available Flood and Coastal Committee Local Levy
iii. To support the intention to commission a Feasibility Study for Mount Drive, Leyburn culvert diversion.
iv. To support the continuation of work to identify and work towards funding opportunities, should the bids details be unsuccessful.

2.0 BACKGROUND

2.1 In July 2019 unprecedented rainfall in the west of the county saw devastating flooding impacts. Richmondshire was hardest hit by the events, which saw approximately 238 individual properties internally flooded, bridges providing vital links to some remote communities destroyed, watercourses obstructed by tonnes of debris and several significant landslips impacting on the highway network.

2.2 The investigation focussed on Reeth, Arkengarthdale, Leyburn and Bellerby given these were locations which saw the most significant effects, although the resulting reports acknowledged that flooding was experienced elsewhere. See Appendix A for previous report.

2.3 Overall, the locations included in the studies were Reeth and Fremmington, Arkengarthdale, Bellerby, Leyburn, West Witton, Bainbridge, Hawes, and Gayle, Redmire and Spennithorne.

2.4 Meetings were arranged with parish councils to make them aware of the content of the reports, as well as a planned week of public engagement, where the local community discussed options with officers in Leyburn and Reeth.

2.5 All options were considered with Property Flood Resilience being the preferred option. Please refer to Appendix A for full report.

2.6 It should be noted Grinton has been included in the Upper Dales Flood Alleviation scheme.

2.7 In April 2024 a Community Engagement Event was delivered in Leyburn, inviting all eligible residents across the Upper Dales to engage with officers within Flood Risk Management, the Resilience and Emergency Team, the Environment Agency and NYC contractors who have delivered Property Flood Resilience measures in the Malton Scheme. Residents were invited to register for the scheme. Following this, further meetings have been arranged and door to door visits for vulnerable residents.

2.8 Mount Drive, Leyburn continually experiences flooding. The culvert, which runs beneath properties, does not have the capacity to allow constant flow in high rainfall events, which results in surcharging due to being overwhelmed.

3.0 UPPER DALES PROJECT

3.1 The Upper Dales project has been on hold due to the priority of the Malton, Norton, and Old Malton Flood Alleviation scheme with further delays due to the Covid pandemic and issues in obtaining Property Flood Resilience equipment.

3.2 In January 2024, an additional Flood Risk Management Project Manager was recruited to deliver the Upper Dales Flood Alleviation Scheme.

3.3 Progress to date

- Decision to group all areas together for the Upper Dales project
- Meetings held with Yorkshire Dales National Park Authority to inform them of our intention to install Property Flood Resilience measures to residents within the park and the importance of working in partnership to deliver the project which would protect properties. Discussions were held regarding planning permission with the decision taken to survey park residents first, apply for planning permission and install PFR (Property Flood Resilience) in other areas during this time.
- In April 2024, a community engagement event was delivered in Leyburn, inviting all eligible residents across the Upper Dales to engage with officers within Flood Risk Management, the Resilience and Emergency Team, the Environment Agency and NYC contractors who have delivered Property Flood Resilience measures in the Malton Scheme. Residents were invited to register for the scheme. Following this, further meetings have been arranged with door-to-door visits for vulnerable residents.
- To date 84 properties have registered to the scheme, with area visits planned in the coming weeks.

3.3.1 There is a potential option to introduce an overflow pipe which would add capacity in high rainfall events. Riparian owners have been invited to a meeting to discuss this option and agreed, in principle, to a personal contribution to works, a further meeting will be held to discuss the outcome of the feasibility study, if agreed.

3.4 The Flood Defence Grant in Aid is the central government fund for managing flood risk in England and provides funding for the Environment Agency (EA) flood risk management studies and strategies along with local authority flood risk and coastal management studies and projects. Following the completion of the Environment agency partnership funding calculators North Yorkshire is eligible for the grant in aid to support the Upper Dales Flood Alleviation scheme, these have been submitted as individual projects. It became apparent on completion of each public fund application there was a risk contingency shortfall which has resulted in the application for Local Levy funding (see Appendix B). Each month, we contribute to the Local Levy fund and are eligible to apply for funding to deliver flood risk projects in the county.

Project title	Council contribution	Grant in Aid	Local Levy
P1. Wensleydale	£97,500	£168,483	£58,017
P2. Leyburn	£107,250	£143,910	£88,940
P3. Leyburn & Redmire	£74,750	£82,185	£100,666
P4. Leyburn 3	£100,750	£115,915	£110,035
P5. West Witton & Spennithorne	£47,618	£103,382	£47,618
P6. Reeth	£70,913	£138,637	£70,913
P7. Upper Dales	£106,700	£120,700	£106,700
Total	**£650,000**	**£873,212**	**£582,889**

3.4.1 We are now able to address the flooding issues in the Upper Dales and seek approval to apply for funding to protect North Yorkshire residents in any future flooding events.

4.0 ALTERNATIVE OPTIONS CONSIDERED

4.1 All alternative options have been explored. Property flood resilience is the preferred option see Appendix A for full report.

5.0 FINANCIAL IMPLICATIONS

5.1 The estimated total value of the scheme elements to be delivered by NYC is presently £2.1m. It is however important to stress that the scheme is essentially a package of works and this value is an outline estimate, some elements being subject to third party agreement, and is therefore not definitive at this point in time. The risk of project costs exceeding the estimated value can be managed by prioritising on a risk basis and scalability. If the value of the grant or local levy funding is reduced, again projects will be prioritised and scaled down to be managed within the allocation of £650k from NYC.

5.2 The expected council contribution towards the flood risk management forward programme for the work in the Upper Dales over the next three years is £650k. There is presently £1,477k held in reserves for use towards flood risk management, of which include the allocation of £650k towards the Upper Dales programme of works.

6.0 LEGAL IMPLICATIONS

6.1 If the applications are successful any Environment Agency Flood Defence Grant terms and Flood and Coastal Committee Local Levy terms will be reviewed by legal services to ensure that they do not present an unacceptable risk for the Council.

7.0 EQUALITIES IMPLICATIONS

7.1 The scheme benefits all those with protected characteristics by reducing the risk of surface water flooding in the Upper Dales and thereby the associated effects upon businesses, residential properties, the public health of the community living at flood risk and the associated economic growth of the area (see Appendix C).

8.0 CLIMATE CHANGE IMPLICATIONS

8.1 Flood mitigation offers positive benefits to resilience to future climate change projections. The proposals are anticipated to have a positive impact in response to climate change (see Appendix D).

9.0 REASONS FOR RECOMMENDATIONS

9.1 Property Flood Resilience is offered to all eligible residents who meet the criteria, the identified properties have either flooded or been identified as high risk of flooding within the Environment Agency guidelines and the scheme will improve living conditions for those flooding has affected. The implementation of PFR (Property Flood Resilience) will offer piece of mind to residents that in adverse weather conditions their properties and themselves are better protected.

9.2 It is therefore considered appropriate to continue with the scheme as intended, with regular relevant liaison through the engagement channels established as part of the scheme.

10.0 RECOMMENDATION

10.1 It is recommended that the Chief Finance Officer, in consultation with the Deputy Leader and Executive Member for Finance and Resources, and the Executive Member for Highways and Transportation:

i. note the work undertaken by NYC to date towards the business case
ii. grant approval for the scheme to be delivered and led by NYC's Flood Risk Management Team
iii. authorises the submission of an application for £873,212 of the Environment Agency Flood Defence Grant in Aid funding to enable scheme development during 2024/25 2025/26 2026/27
iv. authorises the submission of an application for £582,889 of the Flood and Coastal Committee Local Levy funding to enable scheme development during 2024/25 2025/26 and 2026/27
v. note the intention to commission a Feasibility Study for Mount Drive, Leyburn culvert diversion
vi. note the intention to continue to explore future funding opportunities to finance the scheme

APPENDICES:
Appendix A – Upper Dales Villages Project Update and Preferred Options for Progression Report
Appendix B – Upper Dales YRCC Local Levy Capital Proforma
Appendix C – EIA Screening Form
Appendix D – Climate Change Impact Assessment

Barrie Mason
Assistant Director Highways & Transportation, Parking Services, Street Scene, Parks & Grounds
Environment Directorate
County Hall
Northallerton
09 August 2024

Report Author – Patricia Gourley Flood Risk Management Project Manager
Presenter of Report – Emily Mellalieu, Development Manager Team Leader

North Yorkshire County Council

Business and Environmental Services

Executive Members

21 January 2022

Upper Dales Villages Flood Risk Management Project Update and Preferred Options for Progression

Report of the Assistant Director – Highways and Transportation

1.0 Purpose Of Report

1.1 To inform the Corporate Director, BES and BES Executive Members of the outcomes of the feasibility studies commissioned, which looked at potential flood mitigation actions in a variety of villages and locations in Wensleydale and Swaledale.

1.2 To seek approval to progress development of the preferred options identified from those studies.

1.3 To seek approval for expenditure of up to £50k from the Flood Risk Management Base Budget to permit further detailed work in the development of the preferred options over Q4 21/22 and into financial year 22/23.

2.0 Background to the report

2.1 In July 2019 unprecedented rainfall in the west of the county saw devastating flooding impacts. Richmondshire was hardest hit by the events, which saw approximately 238 individual properties internally flooded, bridges providing vital links to some remote communities destroyed, watercourses obstructed by tonnes of debris and several significant landslips impacting on the highway network.

2.2 Given the scale of the flooding and the impacts on the community a formal investigation was undertaken by NYCC in its role as Lead Local Flood Authority ("LLFA") under Section 19 of the Flood and Water Management Act 2010 ("the 2010 Act").

2.3 The investigation focussed on Reeth, Arkengarthdale, Leyburn and Bellerby given these were locations which saw the most significant effects, although the resulting reports acknowledged that flooding was experienced elsewhere.

2.4 The report concluded that all risk management authorities had undertaken their duties appropriately and made a number of recommendations for future work to reduce risk and increase community resilience.

2.5 Shortly following the publication of the report in February 2020 an opportunity was secured for work to inform potential future project delivery, in the Upper Dales through the growth fund.

2.6 In addition to those locations investigated in the Section 19 report, officers recognise that additional local villages have suffered historic repeat flood incidents that had been previously investigated by NYCC in its role as the LLFA. The locations share a geographic commonality and flood mechanism, being impacted by repeated surface water flooding events. The locations all featured on the NYCC forward plan for delivery of flood prevention works in future years, but the opportunity afforded by the

growth fund bid has permitted this work to be brought forward as one project, with efficiencies likely to be gained from a grouped delivery.

2.7 Overall the locations included in the studies were Reeth and Fremmington, Arkengarthdale, Bellerby, Leyburn, West Witton, Bainbridge, Hawes and Gayle, Redmire and Spennithorne.

2.8 It should be noted that Grinton was initially scoped out of the flood studies given the relative low number of properties affected by flooding. The main issues in Grinton related to structural damage issues, debris and river channel stability. In the intervening period issues have continued to be raised with respect to channel morphology and the persistent amounts of debris being deposited. A separate study looking at a long term channel management option to be implemented with the parish council is being prepared separately. The management of the gill concerned would be undertaken using existing permissive powers under the 2010 Act.

3.0 Feasibility Studies

3.1 Our partner consultant, WSP was commissioned to identify mitigation options for each of the locations, coupled with indicative costings, to permit an evaluation of the cost benefits. This is particularly critical given the relatively low number of properties impacted meaning that more expensive mitigation options would be unlikely to be financially feasible.

3.2 The studies did not involve any detailed design but presented outline options, based on the physical geography of the villages, consideration of watercourses and the topography and based on the local understanding of flood mechanisms, observed during flood events.

3.3 The scope did not consider certain potential constraints to delivery such as obtaining landowner agreement or cost, although the identification of preferred options following the receipt of the reports has then taken this into consideration. For the preferred options, these factors are intended to be explored during the next phase of the work.

3.4 In undertaking the studies, NYCC Officers and consultants undertook site visits with community representatives identified by local parish councils. When consultants had collected all evidence, meetings were arranged with parish councils to present the draft information to them to ensure it was accurate and that the community was kept informed of the work.

3.5 Once draft reports arising from the studies were finalised, further meetings were arranged with parish councils to make them aware of the content of the reports, prior to a planned week of public engagement, where the local community will be able to drop in and discuss options with officers at venues in Leyburn and Reeth.

3.6 Whilst all options will be presented to the community, it is intended to present preferred options to be progressed, alongside a rationale for those preferences, given that some of the discounted options are unlikely to demonstrate the appropriate cost benefits.

3.7 The full reports are available to view by Members on request.

4.0 Preferred options

4.1 A full description of all options identified by WSP, alongside officer comment is presented in Appendix 1 of this report.

4.2 NYCC Officers have identified preferred options to be progressed to delivery from the feasibility studies. This is represented in table two below. This selection has been based on the following considerations.

4.3 Timescales
The LLFA will seek to prioritise options where schemes can be implemented as quick solutions in a short period. Where option scoring is close, the LLFA would seek to promote the schemes with shorter lead in periods to work on the ground taking place. The options have therefore been considered applying the following weighting (the higher the score the greater the priority):
1 = Significant planning and design work and long lead in times 12 months+
2 = Medium Term 6+ months
3 = Short Term 3+ Months

4.4 Partnership Working
The LLFA will seek to deliver efficiencies and improvements, in particular by working in partnership with other relevant authorities in accordance with its role under the 2010 Act. The LLFA will always seek to align projects with current national and local flood risk management strategies and projects. There are a number of projects that could run compliment or supplement catchment wide projects such as Natural Flood Management works currently undertaken by other partner organisations in both Swaledale and Wensleydale catchments. Where options provide multifunctional benefits to properties, highway users or takes advantage of partnership working, the LLFA will seek to promote these schemes. The following weighting has been applied to account for these factors:
1 = Little prospect of working in partnership
2 = Work in partnership within council services
3 = Work in partnership with other external organisations such as Dales to Vales Rivers Network, the Yorkshire Dales National Park Authority and others.

4.5 Environmental Benefits
The LLFA will seek to promote options that align with NYCC policies and position statements on environmental factors such as climate change, carbon capture, increased biodiversity and habitat creations. The following weighting has therefore been applied to cover this:
1 = Little to no environmental benefits
2 = Improvements in water quality and habitat creation
3 = Significant multifunctional benefits

4.6 Project Resilience
Resilience index: this measures the extent to which each option satisfies the following criteria, which are considered desirable from a long-term resilience perspective;

- Passive – low reliance on energy and operator intervention
- Self-sufficient – not reliant on performance of other systems
- Fail-soft / Fail-safe – won't fail catastrophically nor worsen situation if design standard exceeded / system failure occurs
- Flexible and adaptive – can be adapted to take account of evolving changes in circumstance / climate
- No regrets – won't close off potentially attractive alternatives
- Self-reinforcing – work with, rather than against, natural processes, supporting ecosystem integrity
- Diverse and distributed – not reliant on a single technology / technique in one location.

4.7 This index was scored as follows:
3 = 6 or 7 resilience criteria met
2 = 4 or 5 resilience criteria met

1 = 2 or 3 resilience criteria met
0 = 0 or 1 resilience criteria met

4.8 Potential for further partnership funding opportunities
The LLFA will always seek to align projects with current national and local flood risk management strategies and projects. There are a number of projects that could run compliment or supplement catchment wide projects such as NFM works currently undertaken by other partner organisations in both Swaledale and Wensleydale catchments. The LLFA also prioritise projects which may attract other alternative sources of funding, such as LEP funding secured for the initial stage of the Upper Dales feasibility work. The following weighting is applied:
0 = Negative cost benefit – no funding
1 = Funding from FRM Capital
2 = Funding from one source in addition to FRM capital
3 = Funding from multiple sources.

4.9 Cost Benefit
In order to be promoted as a preferred option and to have any prospect of a successful business case, the scheme must demonstrate value for money. In accordance with the Environment Agency's Partnership Funding calculator, the simple project cost benefit ratio irrespective of any contributions or additional benefits has been used to derive a cost benefit for each option. This can be refined later if a scheme is considered to have marginal cost benefits. A negative cost benefit ratio renders a scheme unviable. Appropriate weighting has been applied to reflect the importance of this element. Depending therefore on the cost benefits ratio of each option a varying score of between -15 and +15 is applied as per the table below.

Table One Cost Benefit Table

Project cost benefit x:1	**Score**
>5	15
4-5	10
2-4	5
1-2	0
<1	-15

4.10 Property Flood Protection scores highly in all locations, so is a "do minimum" option in all cases. When further analysis has been undertaken on the options, this will be a potential delivery mechanism, where some of the other options may prove with further work to be unviable.

Table Two Preferred Options List

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
Arkengarthdale					
1c - Implement a flood embankment along the north-west of the town to provide a barrier to flows.	A	£51, 200	15	**21**	Limited protection offered to properties on the left bank of Arkle Beck. Unlikely to align with National Park Authority's heritage and conservation policies etc. Routine vegetation management and minor reinstatement works. Does not align with any highway works Significantly lower construction cost results in a cost benefit ratio of >5. Limited funding opportunities given that hard engineered solutions do not align with current practices and aspirations.
6 - Undertake essential maintenance to clear culvert and implement modern trash screen to prevent future blockage.	C	£7, 800	10	**21**	Could be delivered at speed to elevate initial flooding issues Unlikely to conflict with National Park Authority's requirements. Could be implemented as part of highways improvements. Trash screen would be installed on NYCC asset. Could attract highways funding
14 - Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff	A,B,C,D,E	Unknown	Unknown	**14**	Some maintenance and monitoring required – predominantly by land owners. Aligns with some aspirations of the National Park Authority. In line with national and local strategy. Various funding streams available for NFM
3 - Regrade area of Booze Road above the field in the east of the village in order to divert surface water flows along Booze Road into the field.	B	£35, 500	5	**12**	Significant off highway works which will require National Park planning and significant land owner buy in. Some maintenance responsibilities on NYCC. Does not align with other work streams therefore unlikely to alight with other funding opportunities.

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
10 - A newly excavated collection channel would collect surface water runoff from hillsides and convey flows away from buildings.	E	£87,600	0	**6**	Significant off highway works which will require securing planning permission and significant land owner buy in. Some maintenance responsibilities on NYCC. Does not align with other work streams therefore unlikely to align? with other funding opportunities. Unlikely to progress due to costs. Very low cost benefit ratio
Total		**£182,100**	**Plus NFM scheme costs tbc**		
Bainbridge					
1 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of The Crescent.	A	Unknown	0	**13**	Some maintenance and monitoring required – predominantly by land owners. Aligns with some aspirations of the National Park Authority. In line with national and local strategy. Various funding streams available for NFM
6 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of Sycamore Hall.	B	Not Currently known		**13**	Some maintenance and monitoring required – predominantly by land owners. Aligns with some aspirations of the National Park Authority. In line with national and local strategy. Various funding streams available for NFM
Total		**£0**	**Plus NFM scheme costs tbc**		

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
Bellerby					
3 - Remove old flap/gate style trash screen and implement new fixed trash screen and maintenance platform at A6108 culvert inlet.	A,D	£9,300	**15**	**27**	Existing screen is not fit for purpose and is a NYCC maintenance liability. A well designed trash screen will significantly improve the current maintenance liability. Would involve work on adjacent property for fixing points. Protects existing NYCC culvert. Could attract NYCC highways revenue/capital funding. FRM and others may be able to act in a short space of time in order to deliver trash screen
5 - Remove wall in garden at Aston House. May also require regrading of road to ensure flows are routed towards the watercourse.	D	£1,600	**15**	**23**	Relatively simple intervention. Significant land owner buy in required as it involves removal of a 3rd party wall. Unlikely to attract any funding or align with other NYCC priorities
9 - Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff.	A,C,D,E,F	Currently Not Known	**N/A**	**13**	Significant landowner buy in? will be required. Unknown costs involved.
10 - Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff.	B, E	Currently Not Known	**N/A**	**13**	Significant landowner buy in? will be required. Unknown costs involved

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
1 - 5No. on-line attenuation features located upstream of Bellerby on the alignment of the flow path over the Bellerby Beck culvert.	A,B,C,D,E,F	£253,500	**0**	**12**	BPC are currently working with landowners, to progress this option. Whilst the cost benefit appears marginal, the committed land owner buy in and providing the required land, the parish council maintaining the structure for the lifetime of the scheme and additional external funding from the Two Ridings fund, this project provides and attractive proposition and the LLFA will seek to support where it can. Either through officer time of financial support.
Total		**£264,400**	**Plus NFM scheme costs tbc**		
Hawes and Gayle					
6 - Removal of railway bridge remains in Gayle Beck to reduce water levels within the watercourse.	B	£40,000	15	**26**	Buy in from YDNPA will be needed alongside other landowners. Excellent cost benefit ratio
5 - Implement 3 No. floodplain embankments to enhance upstream floodplain.	B	£165,000	15	**23**	Significant buy in from landowners required. Will need to adhere to Reservoirs Act 1975 as amended by the 2010 Act. Very good cost benefit ratio could attract funding. Whether the cost benefit out weights the liability of maintaining the structure would need to be explored further.
1 - Implement flow collection channel of approx. 36m to route surface water around property.	A	£3,000	15	**21**	Significant buy in from landowners required.
8 - Undertake floodplain tree planting.	B	£1,366,000	0	**14**	Significant buy in from landowners required. Needs to be explored further. Could be linked with other schemes

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
9 - Undertake a series of land use changes/interventions across the catchment upstream of Hawes & Gayle (approx. 15km2) in order to reduce rate of hillslope runoff.	B	Not Known		**14**	Significant buy in from landowners required. Could be linked with other schemes
Total		**£1,574,000**	**Plus NFM scheme costs tbc**		
Leyburn					
15 - Review the design of the trash screen at the inlet of the culvert upstream of Bishopdale Close.	D	Unknown	15	**24**	Review of the trash screen could be undertaken promptly, with any recommendations to improve resilience and maintainability considered a quick win. Good Cost benefit ratio.
17 - Identify opportunities to improve drainage; such as the installation of additional gullies or upsizing of drainage runs.	E	Unknown	5	**16**	Could be implemented quickly in partnership with LHA. However any additional work will likely have significant cost implications. Work considered to be highway related matters and could be dealt with as BAU. Option therefore discounted.
12 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment (Dale Grove)	C	Unknown	0	**14**	Initial stages could be implemented quickly whilst working with partner organisations to deliver environmental benefits and increase resilience shows this option to align well with other aspirations. Once an understanding of scheme costs is obtained a cost benefit can be derived and option overall option score improved.

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
21 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land north of Dale Grove. land/soil management and revegetation are commended.	F	£74,000	0	**14**	Initial stages could be implemented quickly whilst working with partner organisations to deliver environmental benefits and increase resilience shows this option to align well with other aspirations. Once an understanding of scheme costs is obtained a cost benefit can be derived and option overall option score improved.
5 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment (Mount Drive)	A	Not Known	0	**13**	Initial stages could be implemented quickly whilst working with partner organisations to deliver environmental benefits and increase resilience shows this option to align well with other aspirations. Once an understanding of scheme costs is obtained a cost benefit can be derived and option overall option score improved.
14 - Formalisation of area to store flows when the culvert is surcharged – this would be achieved by constructing a 120 m long bund on the south east corner of the playing field of The Wensleydale School.	D	£74,000	5	**11**	Design and feasibility, along with negotiation with the school is likely to delay implementation. School is part of NYCC estates therefore implementation should be relatively straight forward in terms of land negotiations. Questions regarding the efficiency of such an intervention when here is a significant overland flow noted. May be ineffective if already full. Suggest scheme goes on pipeline of projects to explore further.

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
1/7 - Upsize the existing watercourse culvert and drainage system beneath Bellerby Road.	A,B	£130,000	0	**6**	Cost Benefit Ration 1.1 is unlikely to attract any external funding. The may ameliorate some of the risk, but does not remove the risk entirely give the risk of blockage or event beyond the design capacity of the culvert. Could be linked with a potential HW Scheme
Total		**£278,000**	**Plus NFM scheme costs tbc**		
Redmire					
1 - Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff.	A, B	Unknown	0	**15**	The option will need to be explored further with landowners.
Total		**£0**	**Plus NFM scheme costs tbc**		
Reeth and Fremmington					
9 - Construct a 17m kerb on the property-side of the highway off Alpine Terrace.	B	£2,400	15	**25**	Attractive cost benefit ratio. Could be delivered quickly in a short time scale to improve exceedance planning and improved resilience.
17 - Enhancement of existing features in the landscape to produce 3 no. attenuation areas in the Arkle Beck catchment upstream of Reeth and Fremington.	A,C,D	£155,000	15	**23**	The option illustrates large attenuation structure, that may have to comply with the Reservoirs Act 1975. Increase risk of breach, which given the catchment characteristics could cause significant risk. No modelling undertaken therefore size of attenuation required no established. Further work required to establish if this option has any merit.

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
1 - Construction of a bund approximately 85 m in length along a current flow path to divert surface water flow.	A	£23,500	15	**22**	A medium timescale for implementation that could provide robust mitigation. Little opportunity for partnership working or provide environmental benefits, limited resilience as an engineered structure. Very good cost benefit ratio.
3 - The installation of a drainage feature (i.e. grid) to collect surface water flow down Mill Lane.	A	£42,000	15	**21**	A medium timescale for implementation that could provide robust mitigation. Little opportunity for partnership working or provide environmental benefits, limited resilience as an engineered structure. Very good cost benefit ratio.
13 - The construction of 2 no. bunds adjacent to the left bank of Arkle Beck at locations where Arkle Beck is reported to overtop.	D	£174,000	10	**16**	Medium timescale with a good cost benefit ratio. Does not align with environmental and resilience objectives. Residual risk of breach. Good cost benefit ratio. Scheme could be considered for further economics and design considerations.
4 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment (Mill Lane)	A	Unknown	0	**15**	Can be implemented in a short space of time with opportunities to with NFM delivery partners to provide flood risk and environmental benefits. Could explore various funding mechanisms.
15 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological	D	Unknown	0	**15**	Some maintenance and monitoring required – predominantly by land owners. Aligns with some aspirations of the National Park Authority. In line with national and local strategy. Various funding streams available for NFM

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
catchment, Fremington					
8 - Regrade a length of the highway along Silver Street to divert flow into agricultural land adjacent to it.	B	£126,000	0	**9**	Option considered as part of collaboration between National Parks and NYCC highways. Collaboration could see the project improve its cost benefit ratio through benefits in kind.
Total		**£522,900**	**Plus NFM scheme costs tbc**		
Spennithorne					
2 - Replace the trash screen with a modern style screen with maintenance platform. The new trash screen would be designed to a modern standard with a reduced risk of blockage and increased ease of maintaining	A	£4,000	15	**26**	Existing screen is not fit for purpose and is a NYCC maintenance liability. A well designed trash screen will significantly improve the current maintenance liability. Would involve work on adjacent property for fixing points. Protects existing NYCC culvert. Could attract NYCC highways revenue/capital funding. FRM and others may be able to act in a short space of time in order to deliver trash screen
4 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment (Spennithorne).	A	Unknown		**14**	Option is less intrusive than option 3. There may be scope to work with the land owners and partner organisations. The project provides increased resilience and potential environmental benefits. There could be a number of funding sources available.

Option No.	Location	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
Total		**£4,000**	**Plus NFM scheme costs tbc**		
West Witton					
7 - Replace pond trash screen with modern standard.	C	£3,800	15	**24**	Existing screen is not fit for purpose and is a maintenance liability. A well designed trash screen will significantly improve the current maintenance liability. Excellent cost benefit ratio
2 - Regrade area of land to slope from north-east down to south-west on the upstream side of the Mill Pond wall.	A	£7,000	15	**23**	Relatively minor intervention that would direct water away from the barn. Would require land owner permission and would be preferable to option 3.
3 - Waterproofing treatment applied along south-west wall of Pondside Barn	A	£6,400	15	**23**	Could be offered as part of PLP scheme.
1 - Increase current pond inlet.	A	£2,600	15	**22**	Relatively simple intervention. Would need to be implemented with other measures to ensure the outlet of the pond is not inundated.
9 - Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment. (West Witton)	A,B,C	Unknown	0	**13**	Can be implemented in a short space of time with opportunities to with NFM delivery partners to provide flood risk and environmental benefits. Could explore various funding mechanisms.
Total		**£19,800**	**Plus NFM scheme tbc**		

Grand Total	**£2,845,200**	**Plus 12 NFM Schemes that have not yet been apportioned a cost**

5.0 Next steps

5.1 The team will be available in Leyburn and Reeth at various times during the week commencing 31 January 2022 so that those impacted can discuss the preferred options directly with officers. Property Flood Resilience (PFR) demonstration kit has also been offered by the contractor contracted by NYCC to deliver the Malton, Norton and Old Malton scheme which will provide a positive engagement tool for demonstrating resilience opportunities.

5.2 Landowner engagement is also a critical next stage, to ensure there is buy-in for any identified measures for progression and to engage those individuals and organisations in the process. Whilst not in the scope of the feasibility studies, an element of this has already happened naturally, with site visits having been delivered with the MOD above Bellerby and with input through parish councils from relevant interested landowners in the preparation of the feasibility studies. The next stage will be to build on these established links and look to move towards detailed design for schemes with the appropriate landowner consent in place.

5.3 In the majority of the villages, a Property Flood Resilience (PFR) measure is identified for progression. There are other flood risk projects across the county at a similar status requiring delivery, in the lower Aire and Rye villages. If these measures become the option in any location the PFR could be procured on a county-wide contract, to enable efficiency in delivery and potentially cost savings on the bulk purchase of resilience products such as flood barriers.

5.4 Other options will require more technical analysis and design and business case development. There is an indicative £400k allocated in the FRM capital budget, taken from the annual base budget and accumulated reserves, to be spent over the next three years to permit the delivery and development of this project. This will permit external funding opportunities to be explored. Likely sources of funding are Flood Defence Grant in Aid (FDGIA), the Regional Flood and Coastal Committee levy pot and any potential local contributions. It is intended to utilise £50k of this allocation to develop the preferred options further prior to commencing work on business cases.

5.5 Officers will work as part of this iterative process of business case preparation/project development during the next financial year. During conversations with interested parties and during the build-up of designs for more technical options, the direction may be forced to change. Similarly, it may become clear that an appropriate level of funding cannot be achieved to permit delivery. Any proposed significant changes in direction will be brought for a decision of the Corporate Director, BES, in consultation with BES Executive Members. Business case submission to any third party funders will also require Corporate Director Sign off as per County Council policy.

6.0 Equalities implications

6.1 Consideration has been given to the potential for any adverse equalities impacts arising from the recommendations of this report. A completed Equalities Impact Assessment screening form is included in Appendix 2.

6.2 It is the view of officers that the recommendations included in this report do not have any adverse impacts on any of the protected characteristics identified in the Equalities Act 2010 or NYCC's additional agreed characteristics. However, it is worth noting that fully developed schemes will require a full Equalities Impact Assessment.

7.0 Financial implications

7.1 The estimated cost of all the measures in the preferred options table, excluding natural flood management, is £2,845,200. The next phase of the work will see the preferred options rationalised and the cost estimates for the measures refined and funding sources identified.

7.2 There is £400k in total indicatively allocated in the flood risk management forward programme to the work in the Upper Dales over the next three years. This is not an indication of full scheme costs but is a projection of an appropriate level of contribution from the authority towards the works, based on the number of properties likely to benefit from the schemes and the growth opportunities the work may provide.

7.3 The FRM base budget permits approximately £200k per year to be allocated to FRM projects, with the county-wide programme profile requires draw from the flood risk reserve each year to permit the anticipated delivery. There is presently £1.37m in the flood risk reserve.

7.4 As schemes progress, where required, third party funding would be sourced for any projects which were not affordable within the NYCC indicative contribution. NYCC Officers have successfully applied for funding over the past few years from funders including the LEP, EA, RFCC, DEFRA and also from other Risk Management Authority partners to enable scheme delivery.

8.0 Legal implications

8.1 In accordance with its statutory duties within the Flood and Water Management Act 2010 and the Flood Risk Regulations 2009, NYCC as LLFA is required to prepare and maintain a strategy for local flood risk management. It must also investigate significant local flooding incidents and publish the results, and also maintain a register of flood risk assets.

8.2 As LLFA, North Yorkshire County Council has permissive powers under Section 14A of the Land Drainage Act 1991 to undertake work to mitigate surface water flooding or groundwater flooding if the work is considered desirable having regard to the local flood risk management strategy. Section 14 of the 1991 Act gives the LLFA drainage board powers for works carried out in pursuance of a scheme under section 18 for drainage of small areas.

8.3 The LLFA also has permissive powers under Section 25 of the 1991 Act to require works to maintain the free passage of flow on ordinary watercourses in accordance with Section 23(8) in relation to a watercourse in an area outside an internal drainage district.

8.4 Under the County Council's Constitution, the Corporate Director BES has delegated powers to exercise all functions of the Council as Lead Local Flood Authority under the Flood and Water Management Act 2010 and the Land Drainage Act 1991, including (but not limited to) the granting (or otherwise) of land drainage consents for ordinary watercourses.

8.5 This report seeks to progress scheme development in the Upper Dales, in locations already identified as a high priority to NYCC in which to exercise these powers. The affordance of a priority to "high risk locations" is detailed in the NY Flood Risk Management Strategy. It is acknowledged that further legal implications may arise at the planning and implementation stages.

8.6 Proper consideration as outlined in section 6 is being given to equalities issues that are pertinent to these plans

9.0 Climate Change Implications

9.1 A Climate Change Impact Assessment is included as Appendix 3 of this report. No significant impacts are anticipated resulting from the report, however flood mitigation offers positive benefits to resilience to future climate change projections and can offer secondary water quality and environmental benefits if delivered sympathetically. Overall then, the proposals are therefore anticipated to have a positive impact in response to climate change.

10.0 Recommendations

10.1 It is recommended that the BES Corporate Director, in consultation with the BES Executive Member for Access:

i. Note the outcomes of the Upper Dales feasibility studies

ii. Approve the progression of the work towards the preferred options identified in this report arising from the studies described and incurring the associated indicative expenditure from the FRM budget.

iii. Approve expenditure of up to £50k from the Flood Risk Management Base Budget to permit further detailed work in the development of the preferred options over Q4 21/22 and into financial year 22/23.

BARRIE MASON
Assistant Director Highways and Transportation

Author of Report: E Mellalieu, M Jones

Background Documents:
NY Flood Risk Strategy
Upper Dales Section 19 Report
Upper Dales Feasibility Reports

Critical Analysis of Options

To be read in conjunction with the Upper Dales Feasibility Reports 2021

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
Arkengarthdale											
1c	Implement a flood embankment along the north-west of the town to provide a barrier to flows. This will effectively 'cut off' the flow path from the north, routing flows into Arkle Beck to the West. It is assumed a back drainage system would not be required for this option.	A	1	1	1	1	2	£51, 200	15	**21**	Limited protection offered to properties on the left bank of Arkle Beck. Unlikely to align with National Parks heritage and conservation policies etc. Routine vegetation management and minor reinstatement works. Does not align with any highway works Significantly lower construction cost results in a cost benefit ratio of >5. Limited funding opportunities given that hard engineered solutions do not align with current practices and aspirations.
6	Undertake essential maintenance to clear culvert and implement modern trash screen to prevent future blockage.	C	2	3	1	3	2	£7, 800	10	**21**	Could be delivered at speed to elevate initial flooding issues Unlikely to conflict with National Parks requirements. Could be implemented as part of highways improvements. Trash screen would be installed on NYCC asset. Could attract highways funding
2	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A	3	2	1	3	2	£70,315	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.
4	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	B	3	2	1	3	2	£24, 180	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
7	The installation measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks	C	3	2	1	3	2	£18, 140	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.
9	The installation measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	D	3	2	1	3	2	£30, 225	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.
12	The installation measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	E	3	2	1	3	2	£36, 270	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.
14	Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff. Interventions may include tree planting, leaky dams, removal of formal land drainage, limiting sediment transport. Aim to infill a number of drains or 'grips' in the upper catchment to slow runoff/discharges to Arkle Beck. Undertake peatland restoration where erosion and degradation of natural peatland has occurred	A,B,C ,D,E	2	3	3	3	3	Unknown	Unknown	**14**	Some maintenance and monitoring required – predominantly by land owners. Aligns with some aspirations of the national park. In line with national and local strategy. Various funding streams available for NFM

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
3	Regrade area of Booze Road above the field in the east of the village in order to divert surface water flows along Booze Road into the field. At the south-westboundary of the field a newly excavated collection channel would collect surface water flows and route water to the southeast, around the village. The proposedcollection channel as outlined discharges to the field at the southeast of the village. However, alternative discharges, such as to Arkle Beck, SuDS pond or soakaway,should be examined.	B	1	1	2	2	1	£35, 500	5	**12**	Significant off highway works which will require national Parks planning and significant land owner buy in. Some maintenance responsibilities on the County Council. Does not align with other work streams therefore unlikely to alight with other funding opportunities.
10	A newly excavated collection channel would collect surface water runoff from hillsides and convey flows away from buildings. Pipe outfalls would take water from the collection channel and discharge to Arkle Beck.	E	2	1	1	1	1	£87,600	0	**6**	Significant off highway works which will require national Parks planning and significant land owner buy in. Some maintenance responsibilities on the County Council. Does not align with other work streams therefore unlikely to alight with other funding opportunities. Unlikely to progress due to costs. Very low cost benefit ratio
1b	Implement a flood wall along the north-west of the town to provide a barrier to flows. This will effectively 'cut off' the flow path from the north, routing flows into Arkle Beck to the West. It is assumed a back drainage system would not be required for this option.	A	1	1	1	1	1	£255, 300	0	**5**	Marginal cost benefit ratio of 1.09. Regular inspections required to ensure defence is still fit for purpose. Frequent inspection and clearance of back drainage system to ensure effective operation. County Council would require access in perpetuity to the structure. Significant buy in from landowners required including possible land owner compensation. Unlikely to align with National Parks heritage and conservation policies etc. Will not attract funding from partner organisation with. Negative cost benefit

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
5	Replace the culvert under the road to accommodate a higher flow rate. Investigate influence of Arkle Beck on the culvert outlet and if necessary, raise the culvert outlet to maintain free flowing conditions when water levels in Arkle Beck are high.	C	2	3	1	1	0	£56, 000	-15	**-8**	Negative cost benefit ratio
8	Replace the culvert under the highway with a culvert of equivalent or increased capacity.	D	2	3	1	1	0	£99, 000	-15	**-8**	Negative cost benefit ratio
1	Implement a flood wall along the north-west and south-west of the village to provide a barrier to flows. This will effectively 'cut off' the flow path from the north, routing flows into Arkle Beck to the West. Protection would be afforded to properties at risk of flooding from Arkle Beck. A back drainage system would be required to provide drainage for surface water runoff flowing into the village from the north-east. The section of wall at the west of the village would need to be constructed in residential gardens, which may not be acceptable for residents.	A	1	1	1	1	0	£1, 454, 500	-15	**-11**	Negative cost benefit. Regular inspections required to ensure defence is still fit for purpose. Frequent inspection and clearance of back drainage system to ensure effective operation. County Council would require access in perpetuity to the structure. Significant buy in from landowners required including possible land owner compensation. Unlikely to align with National Parks heritage and conservation policies etc. Does not align with any highway works. Will not attract funding from partner organisation with.
11	Implement a flood wall along the bank of Arkle Beck to protect against fluvial flooding. A back drainage system would be required to provide drainage for surface water runoff flowing into the village from the north-east.	E	1	1	1	1	0	£430, 000	-15	**-11**	Costings and maintenance render this option untenable

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
13	Implement floodplain embankments in two areas of existing floodplain upstream of Whaw. The embankments provide impediments to floodplain flow, increasing water levels within the floodplain, thus increasing floodplain storage. Increasing floodplain storage means water is released more gradually from the floodplain back to the downstream watercourse channel, reducing peak flows in the watercourse.	A,B,C,D,E	1	1	1	1	0	£605, 000	-15	**-11**	Significant landowner buy in needed. Maintenance requirements would be high. Negative cost benefit ratio
Bainbridge											
7	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	B	3	2	1	3	2	£15,900	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
3	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A	3	2	1	3	2	£24,180	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
1	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of The Crescent. A range of measures can be considered, but given assumed land use and watercourse character, land/soil management and revegetation are recommended.	A	2	3	3	3	2	Unknown	0	**13**	Significant buy in from landowners required.
6	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of Sycamore Hall. A range of measures can be considered, but given assumed land use and watercourse character, land/soil management and revegetation are recommended.	B	2	3	3	3	2	Not Currently known		**13**	Significant buy in from landowners required.
9	Investigate the culvert under the boundary wall to the south of Sycamore Hall to potentially upsize or install trash screen.	B	2	1	1	2	1	£19,800	5	**12**	Could be added to capital projects
8	Diversion channel in the field upstream of Sycamore Hall to divert surface water toward the River Bain. Total length of approx. 300m with a 40m cascading style channel over the steep section towards the river.	B	1	1	1	1	1	£104,200	0	**5**	Significant buy in from landowners required. Unknown capacity of current network. Issues with changing the character and landscape. Off highway works. Unlikely to attract additional funding with very low cost benefit

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
2	No. attenuation areas. 3 No. earth embankments constructed at field boundaries to store water during intense rainfall events. Culverts under embankments proposed as flow controls, though alternative methods of flow control should be reviewed.	A	1	1	2	1	0	£233, 900	-15	**-10**	Unknown geology of the area, option would need to adhere to the Reservoirs Act 1975. Negative cost benefit ratio would not attract any funding.
4	Regarding/landscaping of gardens around the properties along Bainbridge Haws to divert flow toward a new culvert to the east.	A	1	1	1	2	0	£106,900	-15	**-10**	Significant buy in from landowners required. Unknown capacity of current network. Issues with changing the character and landscape. Off highway works. Unlikely to attract additional funding with negative cost benefit
5	Replace current culvert with 2 No. open channel sections and 2 No. shorter culvert sections as follows: 140m open channel through the field south of the A684, a 75m culvert beneath the A684 draining to a 70m open channel to the rear of properties along Bainbridge Haws and a 90m culvert beneath the residential gardens and road to discharge to River Bain.	A	1	1	1	1	0	£354,200	-15	**-11**	Significant buy in from landowners required. Unknown capacity of current network
Bellerby											
3	Remove old flap/gate style trash screen and implement new fixed trash screen and maintenance platform at A6108 culvert inlet. New headwall is assumed to be required to facilitate construction of trash screen	A,D	3	3	1	3	2	£9,300	**15**	**27**	Existing screen is not fit for purpose and is a NYCC maintenance liability. A well designed trash screen will significantly improve the current maintenance liability. Would involve work on adjacent property for fixing points. Protects existing NYCC culvert. Could attract NYCC highways revenue/capital funding. FRM and others may be able to act in a short space of time in order to deliver trash screen

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
5	Remove wall in garden at Aston House. May also require regrading of road to ensure flows are routed towards the watercourse and away from buildings.	D	3	1	1	2	1	£1,600	**15**	**23**	Relatively simple intervention. Significant land owner buy in required as it involves removal of a 3rd party wall. Unlikely to attract any funding or aligns with other NYCC priorities
11	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A	3	2	1	3	2	£33,250	**5**	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
12	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	B	3	2	1	3	2	£72,550	**5**	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
14	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	D	3	2	1	3	2	£12,090	**5**	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
15	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	E	3	2	1	3	2	£24,180	**5**	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
6	Regrade land at residential properties to prevent flow from reaching property thresholds. 2 No. Areas outlined to protect properties at a total of 235m2.	D	3	1	1	2	1	£16,150	**5**	**13**	Requires significant land owner buy in as work within residential boundary. No future maintenance liabilities as the works aim to improve flow paths through re-grading of land. Cannot be linked to a highway scheme and unlikely to attract external funding with a low cots benefit score
9	Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff. Interventions may include tree planting, leaky debris dams, removal of formal land drainage, and limiting sediment transport.	A,C,D ,E,F	2	3	3	3	2	Currently Not Known	**N/A**	**13**	Significant landowner will be required. Unknown costs involved.
10	Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff. Interventions may include tree planting, leaky debris dams, removal of formal land drainage, and limiting sediment transport.	B, E	2	3	3	3	2	Currently Not Known	**N/A**	**13**	Significant landowner will be required. Unknown costs involved
1	5No. on-line attenuation features located upstream of Bellerby on the alignment of the flow path over the Bellerby Beck culvert. Attenuation would be achieved by implementing earth embankments with a flow control feature, such as a culvert / weir, along the flow path described in order to hold back high flows during a flood event.	A,B,C ,D,E, F	2	3	2	3	2	£253,500	**0**	**12**	BPC are currently working with landowners, to progress this option. Whilst the cost benefit appears marginal, the committed land owner buy in and providing the required land, the parish council maintaining the structure for the lifetime of the scheme and additional external funding from the Two Ridings fund, this project provides and attractive proposition and the LLFA will seek to support where it can. Either through officer time of financial support.
2	Channel diversion of Bellerby Beck, from upstream of Heron Tree Close, discharging to the open channel south of Moor Road, West of Bellerby Road.	A,C,F	2	1	2	1	1	£118,00	**5**	**12**	There would be a requirement on either NYCC or the land owner to maintain the diversion channel in perpetuity. Potential loss of farmland may impede land owner buy in. Off highway works therefore does not align with any highway schemes.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
8	Regrade Runs Bank at the bend in the road to divert surface flows to the unnamed watercourse at east of Bellerby. Alternatively topographical changes could be focussed on diverting surface water flows through the field to the east of Bellerby, eventually discharging to Bellerby Beck at the south-east of the village.	E	3	3	1	2	2	£48,000	**0**	**11**	Could be linked with a potential HW Safety Scheme
13	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	C	3	2	1	3	2	£48,360	**0**	**11**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
16	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	F	3	2	1	3	2	£36,270	**0**	**11**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
4	Implementation of flood defence around properties. Will require a channel diversion to move the watercourse out of the residential gardens at Bellerby Beck	F	3	1	1	1	0	£482,000	**-15**	**-9**	Significant maintenance liability and negative cost benefit ratio
7	Implementation of 2 No. Subsurface drainage gulley's to convey water from the road surface to the Bellerby Beck	D	2	2	1	1	0	£42,000	**-15**	**-9**	Could be linked with a potential HW Scheme. Additional highways maintenance of drainage system, but not insurmountable. Negative Cost Benefit Ratio

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
	culvert which routes under the Olde Wynd.										
Hawes and Gayle											
6	Removal of railway bridge remains in Gayle Beck to reduce water levels within the watercourse.	B	3	1	3	2	2	£40,000	15	**26**	Buy in from Np will be needed alongside other landowners. Excellent cost benefit ratio
7	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	B	3	2	1	3	2	£244,600	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.
5	Implement 3 No. floodplain embankments to enhance upstream floodplain. 600mm dia. culvert used as flow control at Embankment 2. No flow control at other embankments. Drystone wall removal along embankment footprint.	B	1	1	2	1	3	£165,000	15	**23**	Significant buy in from landowners required. Will need to adhere to Reservoirs Act 1975. Very good cost benefit ratio could attract funding. Whether the cost benefit out weights the liability of maintaining the structure would need to be explored further.
1	Implement flow collection channel of approx. 36m to route surface water around property.	A	2	1	1	1	1	£3,000	15	**21**	Significant buy in from landowners required.
3	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks	A	3	2	1	3	2	£6,000	10	**21**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
11	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks	C	3	2	1	3	2	£6,000	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. There may be some issues with some PLP measures in the National Parks conservation areas. External funding could be pursued.
8	Undertake floodplain tree planting in an area of approx. 0.14km2 in the upstream part of the catchment.	B	3	3	3	3	2	£1,366,000	0	**14**	Significant buy in from landowners required. Needs to be explored further. Could be linked with other schemes
9	Undertake a series of land use changes/interventions across the catchment upstream of Hawes & Gayle (approx. 15km2) in order to reduce rate of hillslope runoff. Interventions may include tree planting, leaky debris dams, removal of formal land drainage, and limiting sediment transport.	B	3	3	3	3	2	Not Known		**14**	Significant buy in from landowners required. Could be linked with other schemes
4	Implement traditional flood wall of approx. 120m length along Gayle Beck left bank/west side. Proposed wall would replace existing drystone wall. Back drainage system required.	B	1	1	1	1	1	£341,000	5	**10**	Discussion required with landowner (Richmond DC) with regards to ongoing maintenance. National Parks planning will be required.
10	Replace existing culvert with a larger culvert, with a single bore area along its length.	C	2	2	1	1	0	£229,100	-15	**-9**	Landowner buy in needed. Negative cost benefit ratio
2	Install new pipe to route water around the property along the line of an existing flow path and discharge to the field at the north. A flow diversion channel may be	A	1	1	1	1	0	£75,000	-15	**-11**	Significant buy in from landowners required. Negative cost benefit ratio

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
	necessary to formalise this and increase its effectiveness.										
Leyburn											
6	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A	3	2	1	3	2	£35,440	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
15	Review the design of the trash screen at the inlet of the culvert upstream of Bishopdale Close. If required, redesign the trash screen to make it less vulnerable to blockages.	D	2	1	1	3	2	Unknown	15	**24**	Review of the trash screen could be undertaken promptly, with any recommendations to improve resilience and maintainability considered a quick win. Good Cost benefit ratio.
9	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	B	3	2	1	3	2	£17,720	10	**21**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
16	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	D	3	2	1	3	2	£62,020	10	**21**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
22	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	F	3	2	1	3	2	£35,440	10	**21**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
17	Identify opportunities to improve drainage; such as the installation of additional gullies or upsizing of drainage runs.	E	3	2	1	1	2	Unknown	5	**14**	Could be implemented quickly in partnership with LHA. However any additional work will likely have significant cost implications. Work considered to be highway related matters and could be dealt with as BAU. Option therefore discounted.
18	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	E	3	2	1	3	2	£74,000	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
12	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land north of Dale Grove.	C	2	3	3	3	3	Unknown	0	**14**	Initial stages could be implemented quickly whilst working with partner organisations to deliver environmental benefits and increase resilience shows this option to align well with other aspirations. Once an understanding of scheme costs is obtained a cost benefit can be derived and option overall option score improved.
21	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land north of Dale Grove. A range of measures can be considered, but given assumed land use and watercourse character, land/soil management and revegetation are commended.	F	2	3	3	3	3	£74,000	0	**14**	Initial stages could be implemented quickly whilst working with partner organisations to deliver environmental benefits and increase resilience shows this option to align well with other aspirations. Once an understanding of scheme costs is obtained a cost benefit can be derived and option overall option score improved.
5	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of Mount Drive.	A	2	3	3	3	2	Not Known	0	**13**	Initial stages could be implemented quickly whilst working with partner organisations to deliver environmental benefits and increase resilience shows this option to align well with other aspirations. Once an understanding of scheme costs is obtained a cost benefit can be derived and option overall option score improved.
4	Attenuation area to be created by excavation of agricultural land on the right bank of the watercourse upstream of 60 Mount Drive.	A	2	1	2	1	1	£109,000	5	**12**	This option offers very low cost benefits and would require extensive negotiation with land owners. The option is unlikely progress further due to maintenance liability

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
13	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	C	3	2	1	3	2	£101,890		**11**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
14	Formalisation of area to store flows when the culvert is surcharged – this would be achieved by constructing a 120 m long bund on the south east corner of the playing field of The Wensleydale School. Stored flow would be discharged from the attenuation area into the existing watercourse culvert at a controlled rate via a 150 mm dia. pipe.	D	1	1	2	1	1	£74,000	5	**11**	Design and feasibility, along with negotiation with the school is likely to delay implementation. School is part of NYCC estates therefore implementation should be relatively straight forward in terms of land negotiations. Questions regarding the efficiency of such an intervention when here is a significant overland flow noted. May be ineffective if already full. Suggest scheme goes on pipeline of projects to explore further.
1/7	Upsize the existing watercourse culvert and drainage system beneath Bellerby Road. Assume culverts are upsized to 1 m dia. circular culvert. It would run 46 m from the western edge of Bellerby Road, under the highway, to its outfall into the existing watercourse	A,B	1	2	1	1	1	£130,000	0	**6**	Cost Benefit Ration 1.1 is unlikely to attract any external funding. The may ameliorate some of the risk, but does not remove the risk entirely give the risk of blockage or event beyond the design capacity of the culvert. Could be linked with a potential HW Scheme

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
10	The excavation of a new drainage channel running 260 m east to west along the northern edge of Dale Grove that collects flows from the surrounding agricultural land. Flows that are collected in the drainage channel will run via a new 600 mm dia. culvert running 123 m down Bellerby Road and discharge into the existing watercourse downstream of Bellerby Road	C	1	1	2	1	1	£165,000	0	**6**	Any drainage channel will have finite capacity and will require regular maintenance. Maintenance responsibilities would need to be agreed with land owner. Additional surface water being directed down Bellerby Road could result in increased risk. Low cost benefit ratio does not make the scheme attractive to external funders.
11	The construction of a bund spanning the length of Dale Grove and situated in an agricultural field to the north. The assumed dimensions of the bund would be 00 m in length with an average height of 1 m. Surface water from the fields would be held behind the bund and be cut-off from the affected properties on Dale Grove. It may be appropriate to combine elements of this intervention with Option 10 depending on the results of further investigation.	C	1	1	1	1	1	£90,000	0	**5**	Option intended to complement Option 10 - With an already limited cost benefit ratio for option 10, the addition of this option would make the scheme financially unviable. Installation of a bund increases the residual risk of breach. As such the bund would need to be inspected periodically and "topped up" (due to settlement) or repaired if it has been overtopped. Scheme scores low across the board. Option discounted.
3	Increase crest level of existing stone channel wall at 60 Mount Drive and tie into suitable feature to provide continuous defence.	A	2	1	1	1	1	£173,000	-15	**-9**	A negative cost benefit ratio confirms that this solution is not financially viable. The option is unlikely to ameliorate the risk as water may continue to flow from the north of mount drive. Option Discounted

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
20	Construct 3 no. flow attenuation areas in agricultural land upstream of the culvert inlet on Riseber Lane. As a notional design, excess flows are assumed to be attenuated by an embankment and discharged into a watercourse culvert at a controlled rate via a 150 mm dia. pipe. Three examples of the flow attenuation areas have been provided based on a high-level interpretation of the topography	F	1	2	2	1	0	£272,000	-15	**-9**	Negative Cost Benefit Ratio
2/8	Construction of a new culvert that bypasses the undersized drainage system. It would run from the small section of open watercourse to the west of Mount Drive to Bellerby Road. From here it would run southwards down Bellerby Road and discharge at the outfall of the existing culvert. It is assumed to be a circular 1 m dia. culvert of 196 m length.	A, B	1	2	1	1	0	£464,000	-15	**-10**	A negative cost benefit ratio confirms that this solution is not financially viable. Further difficulties could be encountered given the space constraints of working between residential properties, garages and within gardens. Option Discounted
19	Replace 3 no. impermeable, mainly asphalted areas with permeable paving or equivalent SuDS feature. The proposed locations are: - Grove Square 1 (1,400 m2), - Grove Square 2 (265 m2), and - Harmby Road Carpark (3100 m2).	F	1	1	1	1	0	£74,000	-15	**-11**	Negative Cost Benefit Ratio
Redmire											

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
2	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A	3	2	1	3	2	£12,080	10	**21**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
4	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	B	3	2	1	3	2	£30,225	5	**16**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
1	Undertake a series of land use changes/interventions in order to reduce rate of hillslope runoff. Interventions may include tree planting, removal of formal land drainage, leaky debris dams and limiting sediment transport.	A, B	3	3	3	3	3	Unknown	0	**15**	The option will need to be explored further with landowners.
3	Installation of a new drainage line along the unnamed road leading to the 5 properties around the former Kings Arms pub in the south of Redmire. The new drainage line should be sited along the existing surface gully to remove water from the road surface.	B	2	2	1	1	0	£112,400	-15	**-9**	Negative Cost benefit ratio
Reeth and Fremmington											

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
5	The installation of measures that protect specific properties directly from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A	3	2	1	3	2	£35,440	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
10	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	B	3	2	1	3	2	£33,220	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
16	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	D	3	2	1	3	2	£68,660	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
9	Construct a 17m kerb on the property-side of the highway off Alpine Terrace. A standard kerb height has been assumed to be sufficient across 17 m.	B	3	2	1	2	2	£2,400	15	**25**	Attractive cost benefit ratio. Could be delivered quickly in a short time scale to improve exceedance planning and improved resilience.
17	Enhancement of existing features in the landscape to produce 3 no. attenuation areas in the Arkle Beck catchment upstream of Reeth and Fremington.	A,C,D	2	2	2	1	1	£155,000	15	**23**	The option illustrates large attenuation structure that may have to comply with the reservoirs act. Increase risk of breach, which given the catchment characteristics could cause significant risk. No modelling undertaken therefore size of attenuation required no established. Further work required to establish if this option has any merit.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
1	Construction of a bund approximately 85 m in length along a current flow path to divert surface water flow around the Holiday Cottages and adjacent properties and into Arkle Beck	A	2	1	1	2	1	£23,500	15	**22**	A medium timescale for implementation that could provide robust mitigation. Little opportunity for partnership working or provide environmental benefits, limited resilience as an engineered structure. Very good cost benefit ratio.
3	The installation of a drainage feature (i.e. grid) to collect surface water flow down Mill Lane. Collected flow would be discharged to Arkle Beck via a sealed pipe approximately 300 mm dia. and 35 m in length.	A	2	1	1	1	1	£42,000	15	**21**	A medium timescale for implementation that could provide robust mitigation. Little opportunity for partnership working or provide environmental benefits, limited resilience as an engineered structure. Very good cost benefit ratio.
12	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	C	3	2	1	3	2	£13,290	10	**21**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
14	Attenuation area to be created by excavation of agricultural land on the right bank of the watercourse upstream of Fremmington.	D	2	1	1	1	1	£75,000	15	**21**	Whilst it has an excellent cost benefit ratio, feedback from the parish council and engineering judgment has established that this option would have finite capacity and would not be effective against the high velocity nature of the flooding experienced here. It would be full in minutes with no additional protection afforded. Option Discounted
13	The construction of 2 no. bunds adjacent to the left bank of Arkle Beck at locations where Arkle Beck is reported to overtop.	D	2	1	1	1	1	£174,000	10	**16**	Medium timescale with a good cost benefit ratio. Does not align with environmental and resilience objectives. Residual risk of breach. Good cost benefit ratio. Scheme could be considered for further economics and design considerations.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
4	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of Mill Lane. A range of measures can be considered, but given assumed land use and watercourse character, land/soil management and revegetation are recommended	A	3	3	3	3	3	Unknown	0	**15**	Can be implemented in a short space of time with opportunities to with NFM delivery partners to provide flood risk and environmental benefits. Could explore various funding mechanisms.
15	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of Fremington. A range of measures can be considered, but given assumed land use and watercourse character, land/soil management and revegetation are recommended.	D	3	3	3	3	3	Unknown	0	**15**	Some maintenance and monitoring required – predominantly by land owners. Aligns with some aspirations of the national park. In line with national and local strategy. Various funding streams available for NFM
8	Regrade a length of the highway along Silver Street to divert flow into agricultural land adjacent to it. A channel approximately 400 m in length would be excavated in agricultural land to collect flows and discharge them to the River Swale. It is proposed that the drainage channel would be excavated along existing field boundaries to minimise disruption to landowners.	B	2	3	1	2	1	£126,000	0	**9**	Option considered as part of collaboration between National Parks and NYCC highways. Collaboration could see the project improve its cost benefit ratio through benefits in kind.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
6	The replacement of 2 no. impermeable surfaces with permeable paving or equivalent SuDS features upstream of Alpine Terrace. These two locations are currently cobbled and are used for car parking.	B	2	1	1	1	0	£187,000	-15	**-10**	Negative cost benefit ratio. Unlikely to gain approval from National Parks for change of surface. Parish Council consultation suggested the same. Option Discounted
2	The implementation of a flood wall around the Holiday Cottages and properties on Mill Lane that are adjacent to Arkle Beck. The flood wall is assumed to be approximately 200 m in length and 1.5 m in height. It is intended to tie into suitable features to provide continuous defence. Back drainage would be required, as there are clear surface water flow paths from the northwest. At this stage, back drainage has not been included within the design or cost estimates.	A	1	1	1	1	0	£958,000	-15	**-11**	Negative Cost Benefit ratio. Option Discounted
7	Diversion of flow from the existing highways drainage system to an underground storage area with approximate total capacity of 260 m3. under the village green.	B	1	1	1	1	0	£230,000	-15	**-11**	Negative cost benefit ratio. Attenuation would have a finite capacity and would not provide a resilient solution. Does not align with other environmental benefits etc. Option Discounted.
11	The implementation of a flood wall around the property on the B6270 that is immediately adjacent to Arkle Beck. The flood wall is assumed to be approximately 95 m in length and 1.5 m in height. It is intended to tie into suitable	C	1	1	1	1	0	£320,000	-15	**-11**	Negative Cost benefit ratio. Scheme does not align with environmental, resilience and funding opportunities. Option discounted.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
	features to provide continuous defence.										
Spennithorne											
2	Replace the trash screen with a modern style screen with maintenance platform. The new trash screen would be designed to a modern standard with a reduced risk of blockage and increased ease of maintaining	A	3	2	1	3	2	£4,000	15	**26**	Existing screen is not fit for purpose and is a NYCC maintenance liability. A well designed trash screen will significantly improve the current maintenance liability. Would involve work on adjacent property for fixing points. Protects existing NYCC culvert. Could attract NYCC highways revenue/capital funding. FRM and others may be able to act in a short space of time in order to deliver trash screen
5	The installation of measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A	3	2	1	3	2	£49,950	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
4	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land upstream of Spennithorne.	A	3	3	3	3	2	Unknown		**14**	Option is less intrusive that option 3. There may be scope to work with the land owners and partner organisations. The project provides increased resilience and potential environmental benefits. There could be a number of funding sources available.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
1	Remove the complex, three-part culvert, and replace with a single barrel, precast concrete box culvert under main street. The cost estimates have been made based on a culvert dimension of 1800mm x 1000mm, which is roughly equivalent to the largest part of the existing culvert.	A	1	2	1	2	1	£182,000	0	**7**	Relatively low cost benefit ratio which will struggle to obtain external funding. Option provide improves culvert hydraulics and provides improved resilience against risk of blockage, collage and long terms maintenance. Suggest option is put on pipeline of project seeking future funding, but is not currently a preferred option.
3	Implement a series of floodplain embankments in existing floodplain areas in the upper Spennithorne Beck catchment	A	1	2	2	1	0	£263,200	0	**6**	Relatively low cost benefit ratio which will struggle to obtain external funding. Would require significant buy in from landowners. High quality arable land upstream - buy in or compensation costs would be high. Alto introduces the risk of breach and high maintenance liabilities. Option Discounted.
					West Witton						
8	The installation protection measures that protect properties from flooding. A notional 'premium' installation per residential property (as per 2015 EA guidance) includes two flood-proof doors, two airbrick covers and external wall render/bricks.	A,B,C	3	2	1	3	2	£33,240	15	**26**	PLP will be offered as part of county wide programme. Homeowner buy in required. External funding could be pursued
7	Replace pond trash screen with modern standard with small maintenance deck.	C	3	1	1	3	1	£3,800	15	**24**	Existing screen is not fit for purpose and is a maintenance liability. A well designed trash screen will significantly improve the current maintenance liability. Excellent cost benefit ratio
2	Regrade area of land to slope from north-east down to south-west on the upstream side of the Mill Pond wall.	A	3	1	1	2	1	£7,000	15	**23**	Relatively minor intervention that would direct water away from the barn. Would require land owner permission and would be preferable to option 3.

Option No.	Description	Location	Timescales	Partnership Working Opportunities	Environmental Benefits	Project Resilience	Funding Opportunities	Approx. Scheme costs	Cost Benefit	Option Score	Engineer Input
3	Waterproofing treatment applied along south-west wall of Pondside Barn. Approx. Length of wall = 13.5m Assumed area of wall to be waterproofed = 27m2	A	3	1	1	2	1	£6,400	15	**23**	Could be offered as part of PLP scheme.
1	Increase current pond inlet. Implement 1m x 1m square orifice/inlet through wall with screen (for livestock).	A	3	1	1	1	1	£2,600	15	**22**	Relatively simple intervention. Would need to be implemented with other measures to ensure the outlet of the pond is not inundated.
9	Introduction of natural process to slow the flow and/or reduce runoff in the headwaters of the hydrological catchment – agricultural land to the south of West Witton.	A,B,C	2	3	3	3	2	Unknown	0	**13**	Can be implemented in a short space of time with opportunities to with NFM delivery partners to provide flood risk and environmental benefits. Could explore various funding mechanisms.
4b	Excavate new watercourse channel along path shown on plan (Appendix B). Watercourse would be culverted under Mill Pond wall and pedestrian area, discharging to pond.	A,B	1	1	2	1	1	£19,500	5	**11**	Would require significant landowner buy in in respect of land take and future maintenance responsibilities. Does not align with other objectives.
6	Implement surface water collection channel at north end of village green and installation of 4. drainage pipes under A684.	C	1	2	1	2	1	£78,000	0	**7**	Significant expenditure for little return as illustrated by the low cost benefit score. Potential partnership scheme with LHA and improved resilience of road network, but funding may be difficult to achieve. Suggest option put on pipeline of project seeking investment.
5	Drop current village green level to provide attenuation of overtopping flow. Discharge pipe in north east corner to allow water to be conveyed under the road to the watercourse channel downstream.	C	1	2	1	1	1	£61,000	0	**6**	It was confirmed during Parish consultations that the green used to be a mill pond, and this option would be reverting the old green to its previous state, therefore not insurmountable. However, given the amount of flow passing through any such intervention would be inundated. Option discounted unless used in conjunction with other options.
4a	Replace existing culvert (consisting of concrete lined channel and slab soffit) with modern culvert.	A,B	1	1	1	1	0	£525,000	-15	**-11**	Negative cost benefit. Significant technical challenges and does not align with environmental and resilience objectives.

Initial equality impact assessment screening form
(As of October 2015 this form replaces 'Record of decision not to carry out an EIA')

This form records an equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.

Directorate	Business and Environmental Services
Service area	Highways and Transportation
Proposal being screened	Approval of development of preferred options in the Upper Dales villages arising from feasibility studies undertaken during 2021
Officer(s) carrying out screening	Emily Mellalieu, Stephen Lilgert
What are you proposing to do?	Progress work on preferred flood risk mitigation options identified as part of a feasibility study covering various Upper Dales villages with a view to enabling delivery of future NYCC schemes
Why are you proposing this? What are the desired outcomes?	Upper Dales villages are identified as a high priority in the NYCC flood risk management programme. The work will see the risk in communities mitigated, increasing community resilience and reducing the detrimental impacts of future flood events.
Does the proposal involve a significant commitment or removal of resources? Please give details.	There is £400k of NYCC expenditure indicatively attached to the proposal. The next phase seeks to utilise £50k of this towards development of preferred options towards a business case. £400k is not representative of the full scheme costs, but it will permit project development and contribution towards any measures identified.

Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYCC's additional agreed characteristic
As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be a significant adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your Equality rep for advice if you are in any doubt.

Protected characteristic	**Yes**	**No**	**Don't know/No info available**
Age		No	
Disability		No	
Sex (Gender)		No	
Race		No	
Sexual orientation		No	

Gender reassignment		No		
Religion or belief		No		
Pregnancy or maternity		No		
Marriage or civil partnership		No		
NYCC additional characteristic				
People in rural areas		No		
People on a low income		No		
Carer (unpaid family or friend)		No		
Does the proposal relate to an area where there are known inequalities/probable impacts (e.g. disabled people's access to public transport)? Please give details.	No.			
Will the proposal have a significant effect on how other organisations operate? (e.g. partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	No			
Decision (Please tick one option)	EIA not relevant or proportionate:	X	Continue to full EIA:	
Reason for decision	The work relates to a geographical area, any action which may arise from the option development relates to the physical geography of the location and its associated flood risk, rather than being a decision which may be assessed differently or would have different implications depending on any protected characteristics an individual may have. Given the project addresses risk in dispersed rural communities it is likely to have a positive impact on this characteristic.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	11 January 2022			

Climate change impact assessment

The purpose of this assessment is to help us understand the likely impacts of our decisions on the environment of North Yorkshire and on our aspiration to achieve net carbon neutrality by 2030, or as close to that date as possible. The intention is to mitigate negative effects and identify projects which will have positive effects.

This document should be completed in consultation with the supporting guidance. The final document will be published as part of the decision making process and should be written in Plain English.

If you have any additional queries which are not covered by the guidance please email climatechange@northyorks.gov.uk

Please note: You may not need to undertake this assessment if your proposal will be subject to any of the following:
Planning Permission
Environmental Impact Assessment
Strategic Environmental Assessment

However, you will still need to summarise your findings in in the summary section of the form below.

Please contact climatechange@northyorks.gov.uk for advice.

Title of proposal	**Upper Dales flood mitigation- preferred options**
Brief description of proposal	**Progression of preferred options**
Directorate	**BES**
Service area	**Network Strategy**
Lead officer	**Emily Mellalieu**
Names and roles of other people involved in carrying out the impact assessment	**E Mellalieu**
Date impact assessment started	**22/12/2021**

Options appraisal Were any other options considered in trying to achieve the aim of this project? If so, please give brief details and explain why alternative options were not progressed. **Other options to be considered would be to do nothing. Given the impacts of flooding on the locations and the opportunity to further develop the findings of the initial Section 19 Flood investigation Report, this option was discounted.**
What impact will this proposal have on council budgets? Will it be cost neutral, have increased cost or reduce costs? Please explain briefly why this will be the result, detailing estimated savings or costs where this is possible. There is £400k indicatively allocated to this project from the Flood Risk Management Base Budget and Reserve. The next stage of this project seeks to utilise £50k of this towards developing the preferred options indicated towards business case.

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**		**Positive impact** (Place a X in the box)	**No impact** (Place a X in the box)	**Negative impact** (Place a X in the box)	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Minimise **greenhouse gas emissions** e.g. reducing emissions from travel, increasing energy efficiencies etc.	Emissions from travel		**X**		**This work will see no change to business as usual. The results of the work address flood risk and as such are likely to have a positive impact in response to climate change.**		
	Emissions from construction		**X**		**As above**		
	Emissions from running of buildings		**X**		**As above**		
	Other		**X**		**As above**		
Minimise **waste:** Reduce, reuse, recycle and compost e.g. reducing use of single use plastic			X		As above		
Reduce **water** consumption			X		As above		

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**	**Positive impact** (Place a X in the box	**No impact** (Place a X in the box	**Negative impact** (Place a X in the box	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Minimise **pollution** (including air, land, water, light and noise)		X				
Ensure **resilience** to the effects of climate change e.g. reducing flood risk, mitigating effects of drier, hotter summers	X			The project works towards the delivery of flood mitigation. Resilience is key to the NY flood risk strategy and options to progress are in line with this.		Working with communities through the delivery to ensure risks are known and understood which increases their resilience in flood events.
Enhance **conservation** and wildlife	X			Preferred Options include Natural Flood Management Measures. This has the potential to have wider benefits to conservation and wildlife beyond simply flood management.		Working with partners including the Dales to Vales Rivers Network to achieve mutual benefits through the project.

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**	**Positive impact** (Place a X in the box)	**No impact** (Place a X in the box)	**Negative impact** (Place a X in the box)	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Safeguard the distinctive characteristics, features and special qualities of **North Yorkshire's landscape**		X		The resulting work if the bid is successful would have the potential to positively enhance distinctive characteristics, features and qualities of NY's landscape		
Other (please state below)		X		As above there are potential positive effects if the bid should be successful.		

Are there any recognised good practice environmental standards in relation to this proposal? If so, please detail how this proposal meets those standards.
n/a

Summary Summarise the findings of your impact assessment, including impacts, the recommendation in relation to addressing impacts, including any legal advice, and next steps. This summary should be used as part of the report to the decision maker. No impacts are anticipated from the development of this work. Any delivery resulting from the project development is likely to have a positive impact in response to climate change.

Sign off section

This climate change impact assessment was completed by:

Name	**Emily Mellalieu**
Job title	**Development Management Team Leader**
Service area	**H&T -Network Strategy**
Directorate	**BES**
Signature	**E Mellalieu**
Completion date	**4/1/2020**

Authorised by relevant Assistant Director (signature): Barrie Mason

Date: 11 January 2022

North Yorkshire Council – Upper Dales Flood Alleviation Scheme

CAPITAL PROJECT PROFORMA

This proforma is intended for levy requests that will fund capital projects to tackle flood and coastal risk (e.g. hard river defences, sea walls, pumping stations).

Please refer to guidance before completing this proforma

EXECUTIVE SUMMARY AND ASSESSMENT METHODOLOGY RESULTS

Executive Summary
Provide a brief summary of the project here and describe why the Levy is being requested. Aim to keep this to around 200 words for the summary that is presented to YRFCC. In July 2019 unprecedented rainfall in the west of the county of North Yorkshire saw devastating flooding impacts. Richmondshire was hardest hit by the events, which saw approximately 238 individual properties internally flooded, bridges providing vital links to some remote communities destroyed, watercourses obstructed by tonnes of debris and several significant landslips impacting on the highway network. The cause was surface water mainly due to the topography of the locations resulting in flash flooding with very little warning to the locations effected. Given the scale of the flooding and the impacts on the community a section 19 investigation was undertaken focussing on Reeth and Fremmington, Arkengarthdale, Bellerby, Leyburn, West Witton, Bainbridge, Hawes and Gayle, Redmire and Spennithorne. Officers recognised that local villages have sufferef historic repeat flood incidents that have been previously investigated by North Yorkshire Council in its role as LLFA. Following this, WSP was commissioned to identify mitigation options for each of the locations, coupled with indicative costings, to permit an evaluation of the cost benefits. WSP findings were analysed with Property Flood Resilience being the preferred option which would benefit all properties in all locations, along with the consideration of some localised drainage modifications. Approximately 40% of the estimated costs are shown to be eligible for grant in aid funding. NYC have allocated 30% of the costs. The Local Levy request will be utilised to fund the remaining funding gap to enable approval of the project and ensure the PFR offer can be provided to those who need it. Funding can be returned to the Levy pot if not needed.

Project stage: Pre-initial assessment/viability study	
Levy requested for current bid: 582,889	**Total Levy requested for project:** 582,889
Estimated total project cost: 2.1m	**Partnership financial contribution**: 1.5m

Essential criteria		**Rating**	**Summary**
Delivers flood risk benefits for one or more sources of flooding / coastal erosion	No. of houses:	196	*Summary of S2 to explain non-property rating.* Household figures quoted are the OM2A total. Non-residential properties benefitting from reduced flood risk are 4 community pubs, The Red Lion Inn at Langthwaite, The Bridge Inn in Grinton, Wensleydale Heiffer at West Witton and Dales Bike at Fremington. Additional benefits to non-residential properties include resilience - the ability to continue with business as usual following clean up and to remain as hub to the communities they serve as most villages of the dales do not have access to amenities or services.
	No. of other properties:	4	
	Non-property rating:	Moderate	

Represents value for money and is cost-beneficial	Significant	*Summary of E1.* Yes the Benefit to cost ratios meets the criteria of the PF Funding submissions for the GiA grants.
Added value criteria		
Offers wider benefits to the communities in terms of environmental or recreational improvements	None	*Summary of E2.* Property Flood Resilience will not provide these.
Levers in additional investment for projects from other funding sources	Moderate	*Summary of F1.* 28% (£528,889k) of Levy requested for the project, 41% (£873,212k)GiA funding request submitted, and 31% (£650k) of North Yorkshire Council funding secured.
Opportunities for shared learning, including process of delivery and methods	Significant	*Summary of M2.* Positive results from previous projects mapped to the Upper Dales Project. Meetings held with Stakeholders identifying potential issues and solutions prior to engaging with resdients. Stakeholders attended the Community Engagement Event in April 2024.
Confidence flags *Insert red, amber or green rating and provide evidence*		
Confidence in cost estimates	Green	*Summary from E1.* Scheme options costed with evidence that 20% to 30% risk contingency has been factored in. Costs have been identified
Confidence in benefit estimates	Green	*Summary from E1.* Estimated costs have been calculated using the high level economic analysis.
Actively engages communities	Green	*Summary from M3.* Following the Section 19 and Feasibility reports by WSP, North Yorkshire Officers engaged with all parish councils to discuss the findings. Week long meetings were set up in locations so those impacted could discuss the preferred options directly with officers, using PFR demonstration kit which provided positive engagement. A designated Project Manager has been recruited to lead on the project with a Community Engagement day including officers from the Flood Risk Management Team, the Resilience and Emergency Team, The Environment Agency, Yorkshire Dales National

		Park Officers and NYC contractors who have delivered the PFR scheme elsewhere in the county. Door to door conversations are help with other meetings help in community halls. Community Engagement will continue throughout the project.
Confidence in other required contributions	Amber	*Summary from F1.* Contributions from North Yorkshire Council are confirmed and not time restricted, funding requests for Grant in Aid have been submitted and awaiting outcome.
Other drivers *Click in the box if this applies and explain why*		
Potential for reputational damage	☒	There has been no progress on delivery of a capital scheme in this catchment since the recommendation in 2021. The perceived lack of action by RMAs is likely to increase if the scheme cannot be supported.
Decision on Levy needed at this Committee round	☒	The project is to be submitted shortly to North Yorkshire Executive Committee round to align with financial approval timescales.
Please confirm		
Your EA Area FCRM has agreed to support this submission for Local Levy funding	☒	

Why should the Committee support this project? (Strategic case)

S1. Describe why the project is required/ what are the objectives?

What is the current situation in the project location and the problem to be solved?

Include details of the history of flooding / coastal erosion, and any impacts. Explain how this fits in with existing strategic plans.

The project covers Whaw, Langthwaite, Reeth, Fremington, Grinton, West Witton, Bainbridge, Hawes, Gayle, and Wensleydale areas: Bellerby, Leyburn, West Witton, Redmire and Spennithorne

The Upper Dales, which include Wensleydale, are a series of valleys, or dales, in the Pennines, they are mostly located in North Yorkshire but extend into Cumbria and Lancashire. The landscape consists of sheltered glacial valleys, separated by exposed moorland and the area experiences very changeable weather.

Flooding in the Upper Dales is predominantly caused by the landscape made up of high steep valleys. With high volumes of rainfall, this results in flash flooding with very little warning.

The most significant flooding event in the Upper Dales occurred in July 2019, some areas had previously experienced flooding in 1986, 2009, and 2012, with some continually flooding to this day due to increased frequency and high volumes of rainfall. Following the devastation of the 2019 floods, many residents moved to short term accommodation whilst their properties and businesses were renovated which for some took many months.

WSP Consultants were commissioned to investigate flooding within the Upper Dales area, their findings identified the following probabilities:

P1. Wensleydale Project: 22 at significant risk. 8 at intermediate risk
P2. Leyburn 1 Project: 26 at intermediate risk. 7 at moderate risk
P3. Leyburn & Redmire Project: 6 at significant risk. 17 at moderate risk.
P4. Leyburn 3 Project: 15 at intermediate risk. 16 at moderate risk
P5. West Witton & Spennithorne Project: 12 at significant risk. 5 at intermediate risk. 3 at moderate risk
P6. Reeth Project: 26 at intermediate risk. 5 at moderate risk
P7. Upper Dales Project: 16 at intermediate risk. 16 at moderate risk.

The project is required for the following reasons:

- Floods are the highest risk in the Upper Dales. Villages in the dales are rural and mostly occupied by vulnerable elderly residents who have lived there all their lives. With the increase of rainfall residents feel vulnerable to the ever changing elements and live in fear of flooding as well as rising renovation costs and high insurances. The future of these communities relies on ensuring increased resilience and adaptation, the implementation of Property Resilience measures will mitigate this risk.

- Access to communities in Swaledale and Arkengarthdale are by winding, hilly and often single track roads. The nearest Emergency Services is over 5 miles away, which is unmanned and often at capacity during such flooding events. Response time is estimated to be 30 minutes in good conditions and 45 minutes in extreme conditions if access is clear. PFR will enable residents to protect themselves and their properties in future flooding.

- Bellerby is surrounded by low lying hills, moorland is located to the North and the west of the village. There are 2 becks which run through the village, Bellerby beck rises from a spring half way up Moor road. Mill Beck which is diverted from Bellerby Beck, flows levada style through the higher part of the village across the green to unite with Bellerby Beck in Mill Lane. The village has experienced severe surface water flooding events across its history, with the most recent floods occurred during October 2012, and June 2019. The flood of 2012 occurred due to a months worth of rain falling over a 24 hour period resulting of flooding in some properties up to 3 feet. Surface water continues to run through the village in heavy rainfalls.

- Bainbridge and Leyburn flood experiences surface water flooding from agricultural land

This investment is required to provide safety and piece of mind to the residents of the Upper Dales and without Property Flood Resilience intervention and with the anticipated increase in frequency of extreme weather events due to climate change, the risk of internal flooding in the project area will increase.

S2. What are the benefits to be delivered for us and others?

Provide details of the benefits that this project will deliver, including properties and non-property infrastructure to benefit and what these are based on (as the receptors to benefit may be more than the OM2s or 3s associated with the project).

The primary benefit resulting from this scheme will be to increase property resilience throughout the Upper Dales, Redmire and Leyburn areas through the offer of Property Flood Resilience measures.

The following were identified in the WSP consultations North Yorkshire Council commissioned.

Residential beneficiaries include:

- 196 properties

Key non-residential beneficiaries include:

- The Bridge Inn - Grinton
- Wensleydale Heiffer – West Witton
- Dales Bike Centre & Café - Fremington
- Red Lion Inn – Langthwaite

Additional benefits to non-residential properties include resilience - the ability to continue with business as usual following clean up. The non-residential beneficaiaries are situated in rural locations which act as community hubs as there are no local amenities/services which are readily available in larger towns and cities. These hubs are really a lifeline for residents, in extreme weather conditions they may be cut off from other locations and the nearest facilities may be up to 16 miles away.

Please provide details below of what is at risk and / or will benefit from the project:

Flood/coastal erosion receptors	**At risk**	**To benefit**
Number of residential properties	196	196
Number of non-residential properties	4	4
Description of non-property receptors / other infrastructure to benefit	0	0

S3. Explain why the Levy is being requested.

Which part of the project is the Levy going to fund?

What would be the impact if the Levy was not approved? Why make this investment now?

High level economic analysis has identified a maximum GiA eligibility of £873,212. NYC has earmarked a contribution of £650K. A further £582,889 is needed to ensure the PFR measures can be offered to all those that need it. Without Local Levy it is highly likely that not all the community will be offered increased resilience.

The Levy covers a proportion of the risk contingency element of the scheme. Hence Local Levy will not need to be drawn down in full if the total project risk contingency is not required and can be released back to the YRFCC.

Why should the Committee invest in this project? (Economic case)

E1. Is the project value for money?

What options and methods have been / will be considered (for the project as a whole)?

Please indicate how the costs and benefits have currently been calculated and how risk has been taken into account for each option.

Options to be investigated are likely to be limited to:

Do nothing

Do minimum

Do Property Flood Resilence Measures – with the possibility of some drainage survey.

The preferred option will deliver 200 properties better protected against flood risk at the end of the appraisal period.

Estimated cost breakdown is:

Appraisal Costs – £207,600

Design and Construction – £1,500,000 plus £398,000 risk contingency

Total Costs for approval - £2,106,101

No future costs involved.

Benefit to cost ration for individual project GiA submissions

P1. Wensleydale 2.8

P2. Leyburn 2.9

P3. Leyburn & Redmire 2.7

P4. Leyburn 3 2.8

P5. West Witton & Spennithorne 2.8

P6. Reeth 3.0

P7. Upper Dales 2.9

Benefit to cost ratio (or range of benefit to cost ratios):

E2. What wider environmental / recreational benefits does / is the project likely to provide?

Does the project offer/allow for any wider environmental or recreational benefits? This could be in the form of new public open spaces or parks, better access to water etc.

Any carbon-saving or biodiversity net gain benefits?

The project does not provide any wider environmental/recreation benefits.

How will the project be funded? (Financial case)

F1. Is the project affordable?

Is the required funding to deliver the project available and supported? Have potential partners been identified? Who are they, have they been approached for contribution(s) and what is the status of negotiations? Are there any conditions placed on funding or constraints on any of the funding sources (including FCERM GiA)? How will post-construction costs be funded?*

North Yorkshire Council has earmarked £650,000 to the project.

An application for FCERM GiA for £873,212 has been submitted and awaiting outcome.

Also looking into additional funding opportunities through the York and North Yorkshire Combined Authority.

There will be no requirement for post-construction costs as once PFR is implemented in each property the responsibility for maintenance lies with the property owner.

	Prior yrs	*2024/25*	*2025/26*	*2026/27*	*2027/28*	*2028/29*	*Future Yrs*
New / Additional Local Levy request (£k)		582,889					
Local Levy already allocated (£k)		0					
Partnership contributions secured to date (£k)		650,000					
FCERM GiA allocated (£k)							
Total funding identified above							

Estimated Total Project Cost (£k) for delivery*	£2.1m	Indicative Raw Partnership Funding score (%)	31%
Total Cost of Current Phase (£k)	£2.1m	Indicative Adjusted Partnership Funding score if Levy approved (%)	70%
Total Levy required towards current phase (£k)	£582,889	Likely maximum FCERM GiA eligibility for delivery* (£k)	873,212

*delivery = appraisal, design and construction

F2. Explain your confidence in delivering to the funding profile requested

There is an expectation that the profile of Levy being requested is deliverable. Please explain how you will achieve this.

NYC has successfully delivered schemes in Malton, Norton and Old Malton, best practice has been mapped across to the Upper Dales Project to ensure the project is delivered.

The profile has been split across investment periods in line with the latest delivery programme. This is to ensure the programme is realistic and deliverable.

F3. Has your organisation made a financial contribution (or in kind) to the project proposed?

If yes, can you provide details? If not, can you offer an explanation as to why?

Yes North Yorkshire Council has allocated £650,000 to the scheme

How will the project be delivered? (Management case)

M1. What are some of the key risks involved in the delivery of the project?

Summarise how the project will be delivered, taking account of key risks and how these will be managed and mitigated.

Day to day management will be undertaken by an experienced Flood Risk Management Project Manager.The Project Manager will be responsible for procuring contractors via the EA Framework, arranging contractual agreements and over seeing works.

Previous delivery of FCERM projects by the Council includes the governance and management of funding from sources including FCERM GiA, Local Levey, Local Growth Funding from North Yorkshire LEP, Ryedale District Council and European Regional Development Funding.

Risks:

- Funding – if GiA and Local Levy contributions are unable to be secured through the OBC this poses a risk to the delivery of the scheme. A robust OBC submission (and Local Ley proforma) aim to mitigate this risk.
- Public Concerns – Possible challenge to the choice of preferred scheme. Additional consultations may be required. Early consulations to gauge views of residents and Stakeholders have been held and will continue throughout the project.
- Permissions & Consents - 77 properties sit within the Yorkshire Dales National Park, planning permission will be required for these properties also to include those listed as Grade 11 buildings. To ensure the project is delivered within the timeframe, it has been decided to survey these properties first, recommendations sent to the YDNPA with any issues discussed and resolved with Project Manager, Watertight (EA Lot 2 designated PFR installer). Planning permission to be raised as bulk rather than individual to ensure agreement is completed within a timely matter. Locations outside of the National Park will have their installations first.

Relationship building has already started with Stakeholders and Residents and will be maintained throughout the project, issues resolved as they arised and a project end feedback session planned.

M2. How will lessons learned from the project be shared, including delivery process and methods?

What previous projects have you learned from? What is the potential for collaborative working, including with other stakeholders?

Previous projects have included the recent Malton, Norton and Old Malton scheme, what worked well in those areas have been mapped across to the Upper Dales scheme, these are:

- informing County Councillors of the intention to deliver the Upper Dales Flood Alleviation Scheme
- liaising with the Yorkshire Dales National Park Authority on the intention to deliver the scheme to properties within the National Park, and the importance of the scheme and discussing the risks should planning not agreed to the works.
- organising Community Engagement event and the advertisement of the event and working with Parish Clerks to advertise events and further locations visits via their social media streams
- inviting Contractors from the previous Malton project to discuss PFR with residents of the Upper Dales, Heritage Officers to discuss planning permissions, Resilience and Emergency Team Officer to discuss flooding

in the area and any other extreme events , NYC Civil Engineers to discuss flooding and consultant recommendations and the preferred option of PFR.
- Environmental Agency Officer to discuss their area of expertise
- Hire of the Flood Mobile to physically inform residents of PFR measures

Regular update meetings are planned with County Councillors

Monthly FCERM meetings held to discuss progress to date on projects.

Weekly update meetings with Contractors & site visits.

M3. How will you publicise the work being done?

Describe the level of community engagement involved with the project.

- A Community Engagement Event was delivered on the 26th April in Leyburn, this involved our Lot 2 partners, Watertight, JBA, EA and various emergency response services.
- Meeting held with the Yorkshire Dales National Park Authority to discuss the project empathising the importance of the project and the effect of flooding within the National Park and to work with us to achieve the outcome
- Scheme registration meetings held in key halls within locations. Door to door engagement with residents.
- Regular update meetings with Couty and Parish Councillors
- Use of Parish Clerks to advertise events, location visits via their social media platforms
- Use of Parish Clerks to contact property owners to contact Project Manager to discuss the scheme
- Use of NYC Communications team to advertise progress of the scheme

ADDITIONAL QUESTIONS FOR COMPLEX PROJECTS (Complete if Levy request is above £100k or requested to do so by Programme Team.)

1. Is the project achievable?

How will the project be managed and delivered? Have roles, responsibilities and key stages been drawn up?

How will success be evaluated?

Yes, North Yorkshire Council will be the lead RMA for this scheme, property resilience will be undertaken by a specially recruited experienced Project Manager within the Flood Risk Management Team.

Project plan drawn up to ensure tasks and dates are complied with – this is ongoing

Project delivered in line with EA Framework.

Success will be evaluated by the successful completion of the scheme by location ensuring tests have been completed and residents are aware on how the property flood resilience measures work.

Ensuring a robust “after sales” service is set up for home owners should any issues arise following implementation of PFR measures.

2. Who else has a financial interest in the project?

List any interested individuals or parties and, if relevant, how they have agreed to support the project (e.g. financially/in kind). Details of financial contributions should be added into section F1 and do not need to be repeated here.

See section F1 for details.

3. What benefits is the project likely to provide to the local or regional economy?

Does the project offer any benefits to the local or regional economy? For example, this could be by protecting existing businesses and/ or roads leading to local amenities or creating new employment opportunities.

Identified non-residential businesses within the locations also act as community hubs, they will benefit from PFR ensuring they get back to business as quickly as possible following clean up and continue to provide this vital service within the rural communities who have no local amenities. They will also benefit economically.

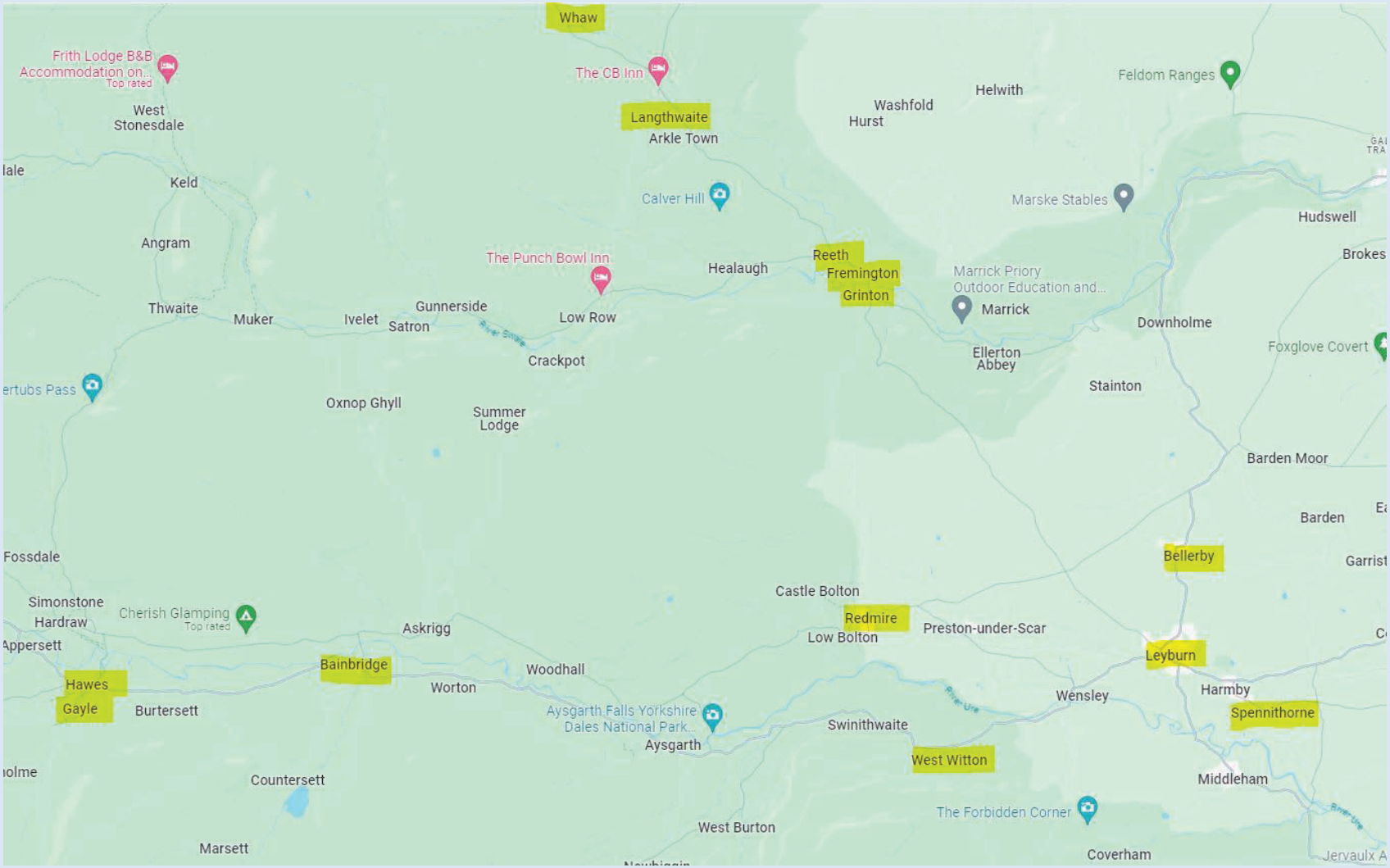
Primarily benefits are limited as the PFR offer is likely only to be to residents in the area.

4. Any other information that you would like to provide that could support the bid?

It is vital Local Levy funding will be granted to ensure the vulnerable residents of the Upper Dales are protected against unpredictable flash flooding they have previously experienced.

Project Location Map

Ensure map displays OS license and contains a key to explain any markings on the map.



Initial equality impact assessment screening form
This form records an equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.

Directorate	Environment
Service area	Highways – Flood Risk Management
Proposal being screened	Upper Dales Flood Alleviation Scheme
Officer(s) carrying out screening	Trish Gourley
What are you proposing to do?	Implement Property Flood Resilience to at risk properties to Reeth and Fremmington, Arkengarthdale, Grinton, Bellerby, Leyburn, West Witton, Bainbridge, Hawes, and Gayle, Redmire and Spennithorne
Why are you proposing this? What are the desired outcomes?	Properties have experienced flooding or have been identified as high risk of flooding.
Does the proposal involve a significant commitment or removal of resources? Please give details.	Yes, the project will run for 2 to 3 years and will have a positive impact.

Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYC's additional agreed characteristics
As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be an adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your directorate representative for advice if you are in any doubt.

Protected characteristic	**Potential for adverse impact**		**Don't know/No info available**
	Yes	**No**	
Age		No – positive impact	
Disability		No – positive impact	
Sex		No – positive impact	
Race		No – positive impact	
Sexual orientation		No – positive impact	
Gender reassignment		No – positive impact	

Religion or belief		No – positive impact		
Pregnancy or maternity		No – positive impact		
Marriage or civil partnership		No – positive impact		
People in rural areas		No – positive impact		
People on a low income		No – positive impact		
Carer (unpaid family or friend)		No – positive impact		
Are from the Armed Forces Community		No – positive impact		
Does the proposal relate to an area where there are known inequalities/probable impacts (for example, disabled people's access to public transport)? Please give details.	No			
Will the proposal have a significant effect on how other organisations operate? (for example, partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	**No**			
Decision (Please tick one option)	EIA not relevant or proportionate:	✓	Continue to full EIA:	
Reason for decision	* The scheme benefits all those with protected characteristics by reducing the risk of surface water flooding in the Upper Dales and thereby the associated effects upon businesses, residential properties, the public health of the community living at flood risk and the associated economic growth of the area.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	26/07/2024			

Initial Climate Change Impact Assessment (Form created August 2021)

The intention of this document is to help the council to gain an initial understanding of the impact of a project or decision on the environment. This document should be completed in consultation with the supporting guidance. Dependent on this initial assessment you may need to go on to complete a full Climate Change Impact Assessment. The final document will be published as part of the decision-making process.
If you have any additional queries, which are not covered by the guidance please email climatechange@northyorks.gov.uk

Title of proposal	**Upper Dales Flood Alleviation Scheme**
Brief description of proposal	**Implement Property Flood Resilience to properties who have experienced flooding or identified as high-risk to Reeth and Fremmington, Arkengarthdale, Grinton, Bellerby, Leyburn, West Witton, Bainbridge, Hawes, and Gayle, Redmire and Spennithorne.** **Properties within the Yorkshire Dales National Park will require planning permission. Outside of the park there are two grade listed building who will also require planning permission.** **This initial climate change impact assessment is for other locations.**
Directorate	**Environment**
Service area	**Highways – Flood Risk Management**
Lead officer	**Trish Gourley**
Names and roles of other people involved in carrying out the impact assessment	**John Ward-Campbell**

The chart below contains the main environmental factors to consider in your initial assessment – choose the appropriate option from the drop-down list for each one.
Remember to think about the following;

- Travel
- Construction
- Data storage
- Use of buildings
- Change of land use
- Opportunities for recycling and reuse

Environmental factor to consider	For the council	For the county	Overall
Greenhouse gas emissions	No effect on emissions	No Effect on emissions	No effect on emissions
Waste	No effect on waste	No effect on waste	No effect on waste
Water use	No effect on water usage	No effect on water usage	No effect on water usage
Pollution (air, land, water, noise, light)	No effect on pollution	No effect on pollution	No effect on pollution
Resilience to adverse weather/climate events (flooding, drought etc)	Increases resilience	Increases resilience	Increases resilience
Ecological effects (biodiversity, loss of habitat etc)	No effect on ecology	No effect on ecology	No effect on ecology
Heritage and landscape	No effect on heritage and landscape	No effect on heritage and landscape	No effect on heritage and landscape

If any of these factors are likely to result in a negative or positive environmental impact then a full climate change impact assessment will be required. It is important that we capture information about both positive and negative impacts to aid the council in calculating its carbon footprint and environmental impact.

Decision (Please tick one option)	Full CCIA not relevant or proportionate:		Continue to full CCIA:	
Reason for decision	*PFR will have a positive impact on properties with resilience to flooding which may result in reduced waste and potential increase of greenhouse emissions. *Waste from the implementation of PFR is one off and limited. Any waste will be removed by the contractor overseen by a North Yorkshire Council Project Manager. *Construction for Property Flood Resilience is one off and limited with no effect on greenhouse emissions and pollution.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	26/07/2024			

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Why are you proposing this? What are the desired outcomes?	Properties have experienced flooding or have been identified as high risk of flooding.
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Decision (Please tick one option)	EIA not relevant or proportionate:	✓?	Continue to full EIA:	✓?
Reason for decision	* The scheme benefits all those with protected characteristics by reducing the risk of surface water flooding in the Upper Dales and thereby the associated effects upon businesses, residential properties, the public health of the community living at flood risk and the associated economic growth of the area.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	09/12/2025			

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