

# North Yorkshire Council

## Environment Executive Members

24 November 2023

### Flood events affecting Scarborough and the surrounding Areas

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

##### **1.0 PURPOSE OF REPORT**

- 1.1 To inform the Corporate Director of Environment and the Executive Member for Highways and Transportation of the flood events within Scarborough and the surrounding areas during August and September 2023
- 1.2 Provide an update on the recommendations included in the [Scarborough Flood Investigation Report August 2017](#)
- 1.3 Seek approval of the Corporate Director of Environment, in consultation the Executive Member for Highways and Transportation for the funding of measures to protect properties affected by frequent flooding.

##### **2.0 SUMMARY AND BACKGROUND**

- 2.1 Section 19 of the Flood and Water Management Act 2010 (FWMA) requires Lead Local Flood Authorities (LLFAs) to investigate flooding incidents in its area to the extent it considers it necessary or appropriate and then publish a report on the results of the investigation.
- 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 the North Yorkshire Council as LLFA carries out an investigation, it is required to publish the results of its investigation and notify any relevant Risk Management Authorities of those results.
- 2.3 This report provides an update on the actions taken since the recommendations were presented as part of the Scarborough Flood Investigation Report 2017 and informs of the recent flooding incidents.

##### **3.0 BACKGROUND**

- 3.1 A number of properties were internally flooded on 5 August and 18 September 2023 at various locations including: Scarborough Scalby Road (Property and Highway flooding) Westbourne Grove, Newby (Hackness Road, Moor Lane), Robin Hoods Bay (New Road), Fylingthorpe (Old Church Lane), Snainton (Station Road, High Street and West Lane), Scalby (Carr Lane).
- 3.2 A number of the locations that were affected by flooding in August and September 2023 were a repeat of locations affected and covered by the 2017 Scarborough Flood Investigation. These were; Scarborough Scalby Road (Property and Highway flooding) Westbourne Grove; Newby (Hackness Road, Moor Lane).

3.3 A table within Appendix A provides a summary of the recommendations and actions taken since the Scarborough Flood Investigation 2017 was published.

#### **4.0 FLOODING ISSUES WITHIN SCARBOROUGH AND SURROUNDING AREAS**

4.1 In response to the events on 5 August and 18 September the Fire Service responded to a number of properties to pump out. In addition, NYC Highways also attended to close roads and carry out post maintenance work to survey/clear debris from their drainage systems. NYC Officers also provided sandbags for residents and residents took measures to protect their properties. NYC Flood Risk Team, Environment Agency and NYC Highways also visited a number of these locations following the flooding to assess the impact and provide additional advice and support to residents.

4.2 The flooding that affected multiple properties including Robin Hoods Bay (six properties internally flooded) and Snainton (eight properties internally flooded and the highway closed) were not covered within the Scarborough Flood Investigation Report 2017. Therefore, these have been assessed separately against the Flood Impact Tool that allows the Flood Risk Management Team to prioritise and assign actions appropriate to the scale and impact of the flooding on these properties. The Flood Risk Team intend to work with the local communities, affected residents/businesses and other Risk Management Authorities to assess what measures can be taken to ensure that these communities are more resilient to flooding and understand their risk to flooding.

4.3 Owing to the frequent nature and ongoing flooding issues experienced at Hackness Road this report also provides an update on the actions taken and proposed by North Yorkshire Council and the Environment Agency to assist in reducing/mitigating the flood risk at this location.

4.4 Hackness Road has experienced repeated flooding during 2023. This location is at high risk of flooding based on the Risk of Surface Water Flood Maps and has been subject of previous studies in 2006 and 2009. There is recent and previous hydraulic modelling that suggests highways flooding might occur almost annually in this location and property flooding can occur as much as every 2-5 years. Up to a 1 in 25-year event, it is understood there are around seven properties that might be affected.

4.5 The hydrology report from 5 August 2023 storm event indicated a 1 in 6-year return period in terms of the rainfall at the Scarborough rainfall gauge – this was around 42mm in 12 hours. This event, previous studies, and the reports from residents, confirm that regular flooding is an ongoing issue. Flood risk in Newby is integrated in nature, with surface water overland flows, sewer input and out of channel flows from Newby Beck all contributing. The steep and urbanised topography combined with limited capacity and culverted watercourses mean that the catchment is particularly sensitive to very intense downpours.

4.6 A summary of the recent flood events is contained below in Table 1 below:

<b>Location and date of flooding</b>	<b>Causes of flooding</b>	<b>Recommendation</b>	<b>Who has responsibilities to manage the causes of the flood?</b>
Hackness Road 05/08/2023 and 18/09/2023	<p>The culverted section of the main river surcharged as it could not accommodate flows due to its limited capacity. and the intensity of the rain.</p> <p>Highways, private and sewers not able to contain overland flows due to rainfall intensity. The excess surface water naturally fell to the low point on Hackness Rd.</p> <p>Due to the surcharged culverted main river and local drainage systems, and the excess surface water, this caused water to flow on to the highway and into/under properties.</p> <p>Cars drove through the flood water and created bow waves which exacerbated the flooding.</p>	<p>The Environment Agency (EA) and North Yorkshire Council (NYC) should work with the property owners to assess the integrity of the culverted section of the main river that is located at the flood location.</p> <p>The Environment Agency/NYC to work with partners to identify if there is a partnership funding solution to mitigate the flood risk at this location.</p>	<p>Riparian owners should take responsibility to maintain their section of the culverted watercourse.</p> <p>Risk Management authorities to assess their assets in terms of condition and ensure they are in reasonable condition.</p>

## 5.0 ALTERNATIVE OPTIONS CONSIDERED

- 5.1 In relation to the above recommendations for Hackness Road, North Yorkshire Council Flood Risk Team and the Environment Agency have also reviewed previous studies (2005 and ARUP 2009 report) undertaken, which previously identified potential options to reduce the risk to properties within Hackness Road and the surrounding area. These reports carried out a thorough examination of the catchment and conducted hydrological modelling in order to best represent the risk. A full appraisal of scheme options, benefits and costs was undertaken and recommendations were provided. The latter report identified a preferred option, estimated to deliver a 1 in 100 year standard of protection, with a benefit cost ratio of approximately 1.5 to 1. However, under the existing guidance at that time, it was identified that the scheme would not be eligible for sufficient 'grant in aid' funding to deliver it.
- 5.2 Using Office of National Statistics deflator data to adjust the costs and benefits in the Arup 2009 report and reviewing recent project appraisal costs, we have re-estimated high level costs and benefits of a capital scheme. This includes the preferred option and a smaller option of storage within the rec ground. The outputs of this assessment show that we are in a similar position to 2009 in terms of bidding to secure grant funding for a capital scheme. Given inflation applies to both costs and benefits this is to be expected. The justification is also likely to be more challenging now than in 2009 given the increased appraisal requirements that now exist and the recent and ongoing rate of inflation in supply chain costs. It is therefore considered less likely that a cost beneficial capital scheme remains viable. If it is, however, the latest calculation of eligible grant funding suggests there is a significant funding shortfall, in the order of £1.4-3.7m depending on the viable option, which would need to be identified.

Table 2 - Options

<b>Option</b>	<b>Assessment</b>
<b>Preferred option</b> – To divert flows that currently flow towards the culverted main river under Lawrence Grove/Hackness Road to an alternative location	Would provide a 1:100 year protection to around 27 properties however will not qualify for sufficient central government funding, may only be marginally cost beneficial and would require significant external funding to be viable. Estimated scheme costs are £2.5-3 million with benefits around £3-3.5 million and grant in aid eligibility around £165,000. A shortfall of approximately £2.53.7 million is expected.
<b>Alternative Option A</b> – Combination of measures including storage	Would protect approximately 3-7 properties up to a 1:20 year return period. This is currently very unlikely to be cost beneficial. Estimated scheme costs are £2-2.3m with benefits around £1-1.5 million with a grant in aid eligibility of around £65,000. A shortfall of at least £2 million is expected.
<b>Alternative Option B</b> – Offer Property Flood Resilience measures eg flood doors/air brick covers etc) to all those properties at risk or impacted by internal flooding	This would be cost beneficial but would only provide a level of protection for more frequent events eg 1:30 year event. Approximately £7,000 per property and an estimated overall cost totalling approximately £56,000.

5.3 In summary, there are currently significant funding shortfalls and with limited potential to secure the level of external funding needed. Based on the re-assessment of the options presented it is recommended that Alternative Option B ‘Property Flood Resilience grants’ are offered to residents.

## 6.0 FINANCIAL IMPLICATIONS

6.1 Additional actions arising from the recommendations within this report are included within the Flood Risk Management Programme carried out by the Flood Risk Management Team (As detailed in Section 3.4 of the Flood Risk Management Programme Delivery Update report – report to August 2022 Business and Environmental Services Executive Members Meeting) and any costs will be managed within existing budgets. The approximate costs will be a maximum of £56,000.

## 7.0 LEGAL IMPLICATIONS

7.1 This report and its recommendations are consistent with the discharge of the Council’s duty as LLFA to investigate flooding as set out in the Flood and Water Management Act 2010 and the Local Flood Risk Management Strategy.

7.2 Surface water drainage systems and ordinary watercourses are the responsibility of their riparian owners. The Council/Partners 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 the Council taking any responsibility for the condition or maintenance of drainage systems in any location.

7.3 Any grants offered will be in accordance with the Council's Procurement and Contract Procedure Rules and subject to appropriate Grant Agreements drafted by Legal Services. If necessary, subsidy control assessments will also be completed under the Subsidy Control Act 2022.

## **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 the Council's additional agreed characteristics. See Appendix B

## **9.0 CLIMATE CHANGE IMPLICATIONS**

9.1 A Climate Change Impact Assessment is included. It is the view of officers that this proposal will have a positive impact on climate change, see Appendix C.

## **10.0 REASONS FOR RECOMMENDATIONS**

10.1 There are currently significant funding shortfalls with limited potential to secure the level of external funding needed. Based on the re-assessment of the options presented it is recommended that Alternative Option B (Table 2) 'Property Flood Resilience grants' are offered to residents.

## **11.0 RECOMMENDATION(S)**

11.1 Subject to acceptable grant terms and conditions, to approve property flood resilience grants for properties affected by flooding in Hackness Road and Moor Lane (at a cost of approximately £7,000.00 per property and an estimated overall cost totalling approximately £56,000) in light of the fact that the alternative options are not cost beneficial and have significant funding shortfalls;

11.2 Note the content of the review of actions taken since the publication of the flood investigation reports and the future actions recommended to continue to understand the risk in these locations.

## **APPENDICES:**

Appendix A – Summary of the recommendations and actions taken since the Scarborough Flood Investigation 2017 was published

Appendix B - Equalities Impact Assessment

Appendix C – Climate Change Impact Assessment

## **BACKGROUND DOCUMENTS:**

Flood Investigation Report – Scarborough August 2017

BARRIE MASON

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

10 November 2023

Report Author and Presenter – Mark Henderson, Senior Flood Risk Management Engineer

Recommendation	Update – November 2023
<p>The LLFA to work with NYC Resilience &amp; Emergencies and the Environment Agency to support the work of ICASP (Yorkshire Integrated Catchment Solutions Programme to investigate any relevant developing technologies in short term forecasting, and surface water risk warning, particularly in relation to other identified “rapid response” catchments with the aim of improving forecasting of intense, localised storms.</p>	<p>NYC Resilience and Emergencies (RET) Update - ICASP carried out a workshop with relevant stakeholders to Identify how short term forecasting can be improved to aid response time and the results can be found at <a href="https://icasp.org.uk/projects-2-2/surface-water-flood-forecasts/">https://icasp.org.uk/projects-2-2/surface-water-flood-forecasts/</a> NY. North Yorkshire Council (NYC) Update - To improve the existing watercourse and surface water network NYC have installed alarms on a number of trash screens where watercourses enter piped systems. This enables a rapid response to flooding/blockages. NYC have a total of 8 across the Scarborough area alongside 3/4 weathers stations.</p>
<p>The LLFA to work with NYC Highways to investigate the potential to adapt roads to formalise their role as exceedance pathways and utilise more resilient materials to mitigate future damages. Particular locations where this should be considered include Peasholm Gap, Eastborough and Columbus Ravine</p>	<p>NYC Highways Update - A number of manholes were damaged as a result of surface water surcharge. However, within Eastborough and Columbus Ravine it would not be appropriate to raise the kerbs to improve the exceedance flowpaths. These locations receive significant runoff which is in part due to the topography. The system includes a watercourse that narrows to a smaller (375mm culverted pipe) going through Peasholm gap. To increase the outfall of the existing piped system would not be cost beneficial.</p>
<p>LLFA should undertake further investigations into the condition of assets associated with ordinary watercourses. Blockage consequence modelling and condition surveys should be carried out on screens and culverts associated with ordinary watercourses, with the intention of informing a program of improvement and maintenance.</p>	<p>NYC (LLFA) - A modelling study has been completed for Scalby Beck from Lady Edith's Drive. The model has corroborated the number of properties at risk. An additional blockage modelling consequence study will be carried in 2023/24. This will involve the EA as they manage assets within this location.</p>
<p>LPA, the LLFA and Yorkshire Water seek a greater level of attenuation on brownfield sites as they come through for redevelopment where sites are discharging surface water to the public sewer network. Greenfield rates of discharge should be achieved wherever possible.</p>	<p>The Mere acts as a storage and has a baffle plate at the outfall. The Scarborough Mere goes into the YW system and stops properties from discharging their surface water to the system. This can cause periodic issues. No funding bids have been submitted to date due to the dispersed nature and extreme circumstances of the event that occurred.</p>

<p>LLFA to make an assessment of the potential for property level resilience in areas where multiple properties are at risk from repeated events. In particular key services such as the ambulance station should be made resilient to flooding.</p>	<p>NYC (LLFA) - A county wide Property Flood Resilience scheme is to be implemented to offer internally flooded properties the opportunity to access grants for flood property level protection measures eg flood doors, air brick covers. The availability of grants will be determined by a range of criteria, one of which being where there is no other cost beneficial scheme available.</p>
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## Equality impact assessment screening form

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	Business and Environmental Services		
Service area	Highways and Transportation		
Proposal being screened	An update on flood events within Scarborough and the surrounding area and a proposal to fund Property Flood Resilience measures with Harkness Road and Moor Lane.		
Officer(s) carrying out screening	Mark Henderson, Stephen Lilgert		
What are you proposing to do?	That North Yorkshire Council, in its capacity as Lead Local Flood Authority seeks approval for flood prevention measures for properties affected by local flood risk.		
Why are you proposing this? What are the desired outcomes?	To provide increased protection and resilience to properties at risk of internal flooding.		
Does the proposal involve a significant commitment or removal of resources? Please give details.	There are financial implications. If the recommended funding for property flood resilience is approved then this will be taken from existing budgets already allocated for this purpose through the Flood Risk Management Programme.		
<p><b>Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYC's additional agreed characteristic</b></p> <p>As part of this assessment, please consider the following questions:</p> <ul style="list-style-type: none"> <li>To what extent is this service used by particular groups of people with protected characteristics?</li> <li>Does the proposal relate to functions that previous consultation has identified as important?</li> <li>Do different groups have different needs or experiences in the area the proposal relates to?</li> </ul> <p><b>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 <a href="#">Equality rep</a> for advice if you are in any doubt.</b></p>			
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	



**APPENDIX B**

Marriage or civil partnership		No	
<b>NYC additional characteristic</b>			
People in rural areas		No	
People on a low income		No	
Carer (unpaid family or friend)		No	
<b>Does the proposal relate to an area where there are known inequalities/probable impacts</b> (e.g. disabled people's access to public transport)? Please give details.	No.		
<b>Will the proposal have a significant effect on how other organisations operate?</b> (e.g. partners, funding criteria, etc.). <b>Do any of these organisations support people with protected characteristics?</b> Please explain why you have reached this conclusion.	No		
<b>Decision (Please tick one option)</b>	EIA not relevant or proportionate:	X	Continue to full EIA:
<b>Reason for decision</b>	The content of this report is technical in nature, and therefore does not have the ability to impact differently upon any protected characteristics. Any measures implemented as a result of the recommendations will be assessed on a case-by-basis. Where it is deemed necessary then an equality impact assessment will be completed to identify any potential impacts on people with protected characteristics. This may result in amendments to the delivery of the measures.		
<b>Signed (Assistant Director or equivalent)</b>	Barrie Mason		
<b>Date</b>	13/11/2023		

## 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](mailto: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](mailto:climatechange@northyorks.gov.uk) for advice.

<b>Title of proposal</b>	<b>Report on the flooding in Scarborough and the surrounding areas</b>
<b>Brief description of proposal</b>	<b>As above</b>
<b>Directorate</b>	<b>BES</b>
<b>Service area</b>	<b>Network Strategy</b>
<b>Lead officer</b>	<b>Mark Henderson</b>
<b>Names and roles of other people involved in carrying out the impact assessment</b>	
<b>Date impact assessment started</b>	

**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.

Yes, a range of options were considered but were not considered cost beneficial and it was deemed that councils' budgets for flood risk should be directed towards schemes which are deemed cost beneficial.

**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.

This will not have increase costs as the budget for the measures has been approved and the proposal is to seek the use of these funds for properties where they have flooded frequently.

How will this proposal impact on the environment?	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?	Explain how you plan to mitigate any negative impacts.	Explain how you plan to improve any positive outcomes as far as possible.
<p>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.</p>		X		<p>Where possible/relevant please include:</p> <ul style="list-style-type: none"> <li>• Changes over and above business as usual</li> <li>• Evidence or measurement of effect</li> <li>• Figures for CO<sub>2</sub>e</li> <li>• Links to relevant documents</li> </ul>		
Emissions from travel		X				

<p><b>How will this proposal impact on the environment?</b></p> <p>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.</p>	<p><b>Positive impact</b> (Place a X in the box below where relevant)</p>	<p><b>No impact</b> (Place a X in the box below where relevant)</p>	<p><b>Negative impact</b> (Place a X in the box below where relevant)</p>	<p><b>Explain why will it have this effect and over what timescale?</b></p> <p>Where possible/relevant please include:</p> <ul style="list-style-type: none"> <li>• Changes over and above business as usual</li> <li>• Evidence or measurement of effect</li> <li>• Figures for CO<sub>2</sub>e</li> <li>• Links to relevant documents</li> </ul>	<p><b>Explain how you plan to mitigate any negative impacts.</b></p>	<p><b>Explain how you plan to improve any positive outcomes as far as possible.</b></p>
<p>Minimise <b>greenhouse gas emissions</b> e.g. reducing emissions from travel, increasing energy efficiencies etc.</p>	<p>Emissions from construction</p>	<p>X</p>				
	<p>Emissions from running of buildings</p>	<p>X</p>				
	<p>Other</p>	<p>X</p>				
<p>Minimise <b>waste</b>: Reduce, reuse, recycle and compost e.g. reducing use of single use plastic</p>		<p>X</p>				
<p>Reduce <b>water</b> consumption</p>		<p>X</p>				
<p>Minimise <b>pollution</b> (including air, land, water, light and noise)</p>		<p>X</p>				
<p>Ensure <b>resilience</b> to the effects of climate change e.g. reducing flood risk, mitigating effects of drier, hotter summers</p>		<p>X</p>				

<p>How will this proposal impact on the environment?</p> <p>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.</p>	<p><b>Positive impact</b> (Place a X in the box below where relevant)</p>	<p><b>No impact</b> (Place a X in the box below where relevant)</p>	<p><b>Negative impact</b> (Place a X in the box below where relevant)</p>	<p>Explain why will it have this effect and over what timescale?</p> <p>Where possible/relevant please include:</p> <ul style="list-style-type: none"> <li>• Changes over and above business as usual</li> <li>• Evidence or measurement of effect</li> <li>• Figures for CO<sub>2</sub>e</li> <li>• Links to relevant documents</li> </ul>	<p>Explain how you plan to mitigate any negative impacts.</p>	<p>Explain how you plan to improve any positive outcomes as far as possible.</p>
<p>Enhance <b>conservation</b> and wildlife</p>		<p>X</p>				
<p>Safeguard the distinctive characteristics, features and special qualities of <b>North Yorkshire's landscape</b></p>		<p>X</p>				
<p>Other (please state below)</p>		<p>X</p>				

**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.

Although this report doesn't in itself result in any impacts, the measures carried out by Risk Management Authorities will have a positive effect on the climate change impact. For example, the projects and programmes will support communities to prevent, protect and prepare for the increased impact and frequency of flood risk as a result of climate change.

Flood events themselves cause an increase in carbon emissions and damage to ecosystems and biodiversity. Through human response to flood events there is increased vehicle movements, waste of damaged property before end of normal life (e.g. appliances, fixtures and fittings), and often carbon intensive built environment preventative measures such as flood walls. Flood water carries organic matter away from agricultural areas and destroys habitats. Consequently, the prevention of flooding event, especially in the knowledge that climate change will lead to increased extreme and more frequent weather events, is very important.

This report contribute towards and support the North Yorkshire Council Climate Change Strategy, [https://www.northyorks.gov.uk/sites/default/files/fileroot/About%20the%20council/Consultations/North%20Yorkshire%20Council%20climate%20change%20strategy%202023-2030/87680\\_Climate%20Change%20Strategy%20for%20web%20-%20accessible.pdf](https://www.northyorks.gov.uk/sites/default/files/fileroot/About%20the%20council/Consultations/North%20Yorkshire%20Council%20climate%20change%20strategy%202023-2030/87680_Climate%20Change%20Strategy%20for%20web%20-%20accessible.pdf) (see page Page 32, 7(b) which references adaptation)

**Sign off section**

This climate change impact assessment was completed by:

<b>Name</b>	<b>Mark Henderson</b>
<b>Job title</b>	<b>Senior Flood Risk Management Engineer</b>
<b>Service area</b>	<b>H&amp;T -Network Strategy</b>
<b>Directorate</b>	<b>BES</b>
<b>Signature</b>	<b>M Henderson</b>
<b>Completion date</b>	

**Authorised by relevant Assistant Director (signature):** **Barrie Mason**

**Date:** **13/11/2023**