June 2023

Hambleton Flood Risk Management Scheme Questions & Answers

Contents

We will periodically update this document with new questions when they are raised. Please provide feedback to cmblnc-pso@environment-agency.gov.uk as we can then make sure it is tracked.

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Q1. How are residents' being given opportunity to comment on the scheme?

In July 2018 the first community drop in event was held, outline designs had not been developed but we wanted to let residents know about the planned scheme. In November 2018 a second community drop-in event was held where residents could comment on the initial outline designs. Residents gave us feedback through conversations at the events, on feedback forms and were given our contact details. The next community drop-in event was held on 20th June 2019 and detailed designs were presented. We demonstrated how we had listened to residents feedback provided at previous events.

Since the last engagement event we have held 1 to 1 meetings with landowners, met with groups of impacted residents and responded to queries raised through online communication channels (email and FloodHub).
Our next public engagement event will be held at Hambleton Village Hall on 22nd June 2023. During this event we will present the detailed design of the scheme which will be submitted for planning permission in June 2023.

Once submitted, our FloodHub site will be updated to provide clear links through to the planning portal where residents will be able to comment on the planning application through the formal process.

Enquiries can be directed to the project team via the Flood Hub page (https://thefloodhub.co.uk/hambleton/) or by emailing cmblnc-pso@environment-agency.gov.uk.

Q2. Why are the Environment Agency looking into a scheme for Hambleton?

Modelling has shown over 600 properties in Hambleton at risk of tidal flooding. More detail on the flood risk is provided in Q3.

The Environment Agency is seeking to invest where we can provide the greatest benefit to people and property, which is why we are looking to provide a flood defence scheme in Hambleton. The proposed scheme would benefit over 600 properties in the village.

With the impact of rising sea levels from climate change this risk may increase in the future. Globally, intense storms are becoming more frequent and climate change is already increasing sea levels around the UK coast.

Q3. What is the current flood risk in Hambleton?

The Environment Agency Flood Map for Planning shows the current flood risk for Hambleton, it can be viewed online at https://flood-map-for-planning.service.gov.uk/. The Flood Map for Planning (i.e. Flood Zones 2 and 3) shows the area at risk for the undefended scenario, so this type of hydraulic modelling does not take into account the effect of any raised defences.

A large part of Hambleton is in flood zone 3 which is an area with the highest probability of flooding. The chance of flooding in any one year is greater than or equal to 1% (e.g. a 100 to 1 chance) for river flooding and greater or equal to 0.5% (e.g. a 200 to 1 chance) for coastal and tidal flooding.

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Q4. What work has been done on the scheme already?

In 2015 an initial assessment of the flood risk to Hambleton was carried out and a report completed. This report assessed flooding issues in Hambleton, historical flooding data was analysed, current defences assessed and tidal data processed.

This initial assessment recommended a more detailed appraisal was undertaken to develop a Strategic Outline Business Case, for expenditure for further detailed work to be carried out. This was approved in early 2018. Economic and environmental assessments, initial hydraulic modelling and phase 1 ground investigations were undertaken and a short list of potential solutions was proposed.

After approval of the Strategic Outline Case, we completed an Outline Business Case. For the Outline Business case an outline design was developed and phase 2 ground investigations were completed. The economic and environmental assessments were developed in more detail. Approval of the Outline Business Case, received in 2020 gave us permission to progress the project further and create a detailed design.

In the time since, we have undertaken additional surveys and ground investigations to enable us to develop our detailed design. We have continued to engage with statutory stakeholders and partners including Natural England, Lancashire County Council, Wyre Council and United Utilities and have continued to engage and consult the community.
The detailed design forms the basis of the planning application we will submit in Summer 2023 and will be at the heart of our Full Business Case which will secure funding to deliver the Construction of the works.

Q5. How have the wall heights been calculated?

Detailed hydraulic modelling has been undertaken to review the likely impact of flood events in the Hambleton area. We have used actual records obtained from previous flooding events to ensure the hydraulic model accurately reflects what has happened previously, enabling us to predict what could potentially happen in the future. This allows us to consider the likely impact of sea level rise associated with climate change, as well as the impact associated with storms of different magnitudes.

Using this model, we are then able to test how different defences may reduce flood risk to Hambleton and how high they may need to be to protect the town from flood events of different sizes. A lower wall may be more acceptable from a visual perspective, but leaves people and property at more risk than a higher wall would. The height of the walls we have proposed are designed to achieve the target standard of protection which considers these, and other, factors.

When calculating the heights of flood defences we do not look at just the predicted flood levels. We also consider things like the height of waves in the estuary, predicted sea level rise, and whether the walls may settle into the existing ground due to their weight after construction.

Q6. Why is there a variance in wall heights in different parts of the scheme?

The scheme wall heights have been designed using the modelled water levels for an event with an annual exceedance probability of 0.5% (which is equivalent to an event likely every 200 years). Per standard practice the designed water levels (DWL) also include a risk allowance (freeboard) to

account for uncertainties within the model and data used to develop the model. In addition an additional allowance has been added to the design water levels to account for our current understanding of climate change trends. This will ensure that the wall heights provide the same level of protection into the future should water levels increase as predicted.

To minimise impacts to residents the wall heights are proposed to be raised in two phases:

- Phase 1 current scheme using DWL, freeboard and initial climate change allowance
- Phase 2 increase of wall height to account for additional climate change allowance*

In Zone 1, the defences will be constructed to a mixture of heights. The section north of Wardleys Pool will have both Phase 1 and Phase 2 works installed due to the extensive highway alterations required and limitations on future upgrade. Therefore, the Design Water Level has been calculated over a 100-year appraisal period including the full 100 years of climate change allowance. South of Wardleys Pool the defences will be constructed to the Phase 1 level to minimise the visual impact for residents.

In Zones 2 and Zone 3 the defences will be constructed in two phases as they have the potential to have a much more significant impact on residents' view and enjoyment of the Wyre Estuary. Due to the type of works required these walls are easier to upgrade in the future therefore, a 100-year appraisal period has been used including a reduced years of climate change allowance. Phase 2 at these zones will see the walls increased in height to include the full 100 years of climate change allowance. To minimise disruption in the future the wall foundations will be designed for the full 100 years of climate change allowance with the only works required in the future being increasing wall heights.

In Zone 4, which includes the alterations to the existing flood defence embankment and Pegs Pool culvert the defences will be built to the full Phase 2 level.

Q7. What standard of protection against flooding will the scheme provide?

The scheme would look to provide protection up to a flood event with a 0.5% chance of occurrence in any given year. Please see question 5 for more detail of the standard of protection the scheme provides. Question 10 outlines the flood mechanisms the scheme is proposing to provide protection against.

Q8. What other options have been considered?

In accordance with Flood and Coastal Risk Management Appraisal Guidance (https://www.gov.uk/government/publications/flood-and-coastal-erosion-risk-management-appraisal-guidance) a list of options to manage flood risk in Hambleton was developed which considers do-nothing, do-minimum, sustain and improvement options.

These options were assessed against different criteria including Health & Safety, Strategic, Technical, Economic and Environmental. The constraints of the area were also considered for example working in a tidal environment, tidal flat deposits, groundwater influence, Morecambe Bay Ramsar / SPA, Wyre Estuary SSSI, landscape & views, access & recreation, cultural heritage and proximity of residential properties.

The short-listed options were:

- Do Nothing: All maintenance activities cease. (Not considered a practical option but required as per the guidance to provide a baseline against which to measure benefits of other options)
- Do Minimum: Continuation of the existing annual maintenance regime, but without regular upgrades
- Do Minimum plus: Continuation of the existing annual maintenance regime but sustaining standard of protection of the existing tidal outfalls
- Do Something: Repairs to, or replacement of, existing informal and formal defences and provision of a consistent standard of protection between Wardley's Pool outfall and Peg's Pool embankment (Zone 1 to 4)
- Do Something: Construction of raised flood defences in the whole study area by constructing new flood walls and/or embankments between Wardley's Pool outfall and Peg's Pool embankment (Zone 1 to 4)

The preferred option of constructing raised flood defences, to the height outlined in question 5 and 6, was selected as we consider it to be the most feasible and cost effective option.

When designing the defences different design options were considered for each zone. These were assessed in categories including: design feasibility/constraints, environmental, constructability, social/landscape, affordability, legal, health, safety & wellbeing.

Location	**Summary of Options considered**	**Current preferred option (subject to detailed design)**
Zone 1	• Wall on the 'wet' side of the road, raise the road height and use ramps when the defence crosses the road • Wall on the 'wet' side of the road, raise the road height and use flood gates when the defence crosses the road • Wall on the 'wet' side of the road, don't increase the road height • Wall on the 'dry' side of the road, don't increase the road height, use flood gates when the defence crosses the road • Embankment	Wall on the 'wet' side of the road, raise the road height and use ramps when the defence crosses the road
Zone 2	• Wall on the 'wet' side of the road, raise the road height • Wall on the 'wet' side of the road, keep the current road height • Position the wall further into the reeds/salt marsh than in the current design • Embankment • Replace the existing property boundary walls, flood gates required for driveways	Wall on the 'wet' side of the road, keep the current road height
Zone 3	• New wall 3m from the existing wall, footpath between the walls and ramps to transition • New wall 3m from the existing wall, use steps for the footpath rather than ramps at each end of the zone	Build a new wall close to the existing wall, Footpath on the 'wet' side with ramps/steps.

	• New wall 3m from the existing wall, keep the footpath at the existing height (e.g. create a walled alleyway) • Replace the existing boundary wall, footpath on the 'wet' side, ramps or steps give access over the wall • Build a new wall close to the existing wall, Footpath on the 'wet' side with ramps/steps. Fill the 'gap' with grass or concrete • Remove the footpath completely and divert it elsewhere • Position the wall further into the saltmarsh e.g. 10m+ from the existing wall • Embankment	Fill the 'gap' with grass or concrete
Zone 4	• Sheet pile wall on top of the existing embankment • Concrete wall on top of the existing embankment • Reinforced earth embankment	Reinforced earth embankment

Q9. Why don't you dredge the river instead of building a wall?

In many cases, dredging is not a long-term solution because tidal rivers quickly silt-up again, other measures such as building walls or embankments are more effective. It can even increase flood risk and erosion and alter the ecosystem and wildlife.

Q10. What is the likely cost to me if my property is flooded?

Across the country we are spending over £2.6bn on flood management because flooding has devastating costs for people and businesses.

- The average cost of flood damage to a home is £30,000
- The average cost of flooding to a business is £82,000
- If you are flooded, temporary accommodation costs on average £10,000
- If you are flooded you are likely to be out of your home for an average of 5 months.

Q11. What is the current funding situation for the scheme?

We invest where we can provide the greatest benefit to people and property at risk of flooding. The project currently has funding to complete the detailed design, submit an application for planning permission and prepare a Full Business Case (FBC). The FBC will seek funding to deliver the construction of the scheme.

Q12. Will the scheme address the surface water and drainage issues in Hambleton?

The purpose of the scheme proposed by the Environment Agency is to manage the risk of tidal flooding from the River Wyre. While the Environment Agency are working with partners through the Making Space for Water group, this scheme will not directly address the known surface water and drainage issues in Hambleton.

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The Wyre Making Space for Water Group contains representatives from the following Risk Management Authorities:

- Lancashire County Council
- Environment Agency
- United Utilities
- Wyre Borough Council

The minutes of the Wyre Making Space for Water group are shared at the quarterly Wyre Flood Forum, previous minutes are available on Wyre Borough Council's website.

Q13. Will we still be able to access the boats in Wardley's Creek?

Access to Wardley's Marine Yacht Club will be affected by the works. We are working with the Yacht Club to agree arrangements for the temporary storage or relocation of craft so that river users are able to access their craft during the construction phase.

Q14. What will the impact be on the view from my property?

The impact on views varies between Zones, with some more affected by others. As noted in Questions 5 and 6, the defence heights along the majority of the Hambleton frontage will be constructed to the lower Phase 1 height, minimising the visual impact for residents.

The proposed finishes for the wall will be shared at the public engagement event in June 2023 and will be presented in the scheme's planning application.

Part of the Zone 2 design includes glass panels. These are being provided in front of properties where window sill levels sit significantly below the top of the new flood defence wall.

Q15. Why has a cycle path been incorporated into the scheme?

A proposal to incorporate a cycle path was part of the early outline designs for the scheme. This has now been removed from the scheme design. However the footpath, which is part of the Wyre Way, will remain.

Q16. How are you addressing the concerns raised about security and privacy?

Residents raised concerns about security and privacy during meetings in 2019 and 2020. We have altered the designs to address these concerns. Please note that the planned cycle way has been removed from the design.

Q17. Will access be maintained to the existing footpath and to Pedder Lane?

Existing public footpaths and the route of the Wyre Way will be retained. In the interest of public safety, access will be disrupted during the Construction phase but will be reinstated once the works are complete and we are liaising with Lancashire County Council about the nature of the closures and temporary diversions.

Access between the Saltmarsh and Pedder Lane will be closed during construction, but will reopen once the works are complete.

Q18. How will the environmental impact of the scheme be minimised?

The Environment Agency conduct environmental assessments to manage and minimise impacts, including a Habitat Regulations Assessment (HRA). The Hambleton frontage on which the new flood defences will be constructed includes a number of environmental designations, including SSSI and Ramsar. In developing our HRA (which will form part of our planning submission) we have consulted extensively with Natural England to discuss potential impacts on the SSSI and how this can be mitigated. As a result of this engagement, we will deliver compensatory habitat measures to offset

the permanent and temporary impacts of the construction work on the designated sites. These works will be delivered ahead of the main FRMS works.

Q19. Will people still be able to walk on the salt marsh?

The Construction working area will be isolated from the adjacent saltmarsh through the use of temporary fencing and, as noted in Question 17, public access via formal Public Rights of Way will be restricted while the construction works are ongoing.
Access to the Wyre Way, the route of which follows the alignment of the proposed Zone 2 and 3 flood defences, will be affected but access will be restored once the construction work is complete.

Q20. What are the next steps?

We are working towards submitting our planning application in early summer 2023. Our Full Business Case to secure funding for Construction will be submitted in Autumn 2023 and we hope to commence construction of the FRMS works in early 2024.

Q21. Will the scheme increase the risk of flooding in other places?

Some residents outside of the proposed schemes have asked to see modelling evidence that the flood risk to their property will not increase when the scheme is built. As part of the formal planning process we have to demonstrate that there is minimal increase to flood risk of properties outside of the immediate flood scheme design, a flood risk assessment will be included in the planning application. Residents will have the opportunity to review this data through their involvement in the planning process.

Q22. Who is responsible for managing flood risk from rivers? Whose responsibility is it to improve the drainage system?

Information on roles and responsibilities for landowners can be found here:
https://www.gov.uk/guidance/owning-a-watercourse

Newground are an organisation who the Environment Agency work closely with to engage with communities across the North West. They have created an information sheet 'Who is responsible for managing flood risk?' which is available here:

https://thefloodhub.co.uk/wp-content/uploads/2018/10/Who-is-responsible-for-managing-flood-risk.pdf

Q23. Will the Wyre Barrage reduce our risk of flooding?

The proposed Wyre Gateway project (commonly referred to as the 'Wyre Barrage') has been developed by a private company with the main purpose of generating electricity, it is not a solution to managing flood risk in Hambleton. The scheme design is still being developed but if the project progresses as part of the planning permission the developer will need to demonstrate that flood risk is not increased.

Q24. Why have we received a flood alert but there hasn't been any flooding?

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Flood Alerts warn people of the possibility of flooding and encourage them to be alert, stay vigilant and make early preparations. They cover a wide geographical area and do not necessarily mean a Flood Warning and flooding to property will follow.

Hambleton falls within the 'Wyre estuary from Fleetwood and Knott End to Little Eccleston' Flood Alert area. Flood Alerts are issued when we expect flooding to impact low lying land and roads including riverside and coastal footpaths and promenades. As a result, Flood Alerts can be issued fairly frequently, especially when the Flood Alert area in question has low lying tidal areas which are particularly susceptible to flooding. This is however an important service for many customers who may be impacted by such flooding, whether this be farmers with livestock on low lying land or residents whose access and egress to property may be impacted. Inland communities can be affected if the tidal Flood Alert coincides with heavy rainfall which may keep river levels higher for longer. Footpaths and promenades may become dangerous or impassable. Also some local authorities and emergency responders have operational activities linked to a Flood Alert.

As a result of the often frequent issuing of Flood Alerts in the Hambleton area during Spring tide cycles, I understand that customers who are only interested in flooding impacting their residential property may feel that the service is too sensitive and providing unnecessary alarm. It is important however to note that Flood Alerts do not relate to the expected flooding of property, and therefore the issuing of a Flood Alert may not always precede the issuing of a Flood Warning. If customers feel they are receiving Flood Alerts too frequently and are not affected directly they may wish to remove them from their Flood Warning Service account, this will not affect their Flood Warning registration.

Whilst our Flood Alert areas are designed to cover wider geographical areas (ie in this case the Wyre estuary from Fleetwood and Knott End to Little Eccleston), our Flood Warning areas are designed to be more targeted to specific areas where the flooding of property can be expected. We therefore have two specific Flood Warning areas for Hambleton – 'Wyre Estuary at Hambleton, around Wardleys Pool and Brickhouse Lane' and 'Wyre Estuary at Hambleton, bordering Brickhouse Lane and A588'. The former covers lower lying areas of Hambleton than the latter, which allows us to warn customers in a more targeted way for greater or lesser magnitude flood incidents. Our Flood Warning areas are derived based on predictive flood risk modelling, which helps us to identify locations at flood risk and their associated level of risk.

The threshold at which we issue a Flood Alert or Flood Warning is determined by the water level at which we expect flooding to commence within the respective Flood Alert or Flood Warning area. Clearly as Flood Alerts relate to the flooding of lower lying areas than a Flood Warning, the threshold at which a Flood Alert is issued is much lower, resulting in more frequent messages. For the Hambleton area, we have used data gathered from historic tidal flood incidents to verify and validate our Flood Alert and Flood Warning thresholds, and to calibrate our predictive flood forecasting models. This is very much an iterative process, and so we continue to monitor the performance of our flood warning service and make amendments to our thresholds if evidence suggests doing so. NB: Spring Tides do not refer to the season, they occurs just after a new or full moon, when there is the greatest difference between high and low water. Therefore Spring Tides can occur at any time of year.

The astronomical tide height can be influenced by a surge and/or wind speed and direction which means that the predicted tide height (which we have up to a year in advance) can either increase or decrease according to atmospheric pressure and sea spray and wave overtopping due to strong winds can cause flooding in some locations.

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Q25. Which tide gauge has been used to provide data for the hydraulic model?

Heysham gauge is part of the national tide gauge network which comprises 44 gauges across the UK. Each gauge measures sea level in metres above Chart Datum (CD), with CD being approximately the lowest astronomic tidal level at a given site. Chart Datum is different at each gauge site, hence to ensure consistency, we relate Chart Datum to Ordnance Datum (OD). Ordnance Datum is the mean sea level as observed at Newlyn tidal gauge, it is fixed and doesn't change and is used for all Ordnance Survey datasets.

Heysham CD is 4.9m below OD, hence when undertaking our calculations, we have adjusted the data to allow for the change in datum. Further, extreme water levels have been calculated using the Coastal Flood Boundary dataset of extreme tides around the country, this dataset also uses OD, as do all other data (topographic survey, etc) within our hydraulic models.

Q26. Have temporary flood barriers been considered as an option, given that tides can be predicted?

Temporary flood barriers are not effective in every situation. They can present operational challenges relating to deployment times and traffic management, and are reliant on accurate weather forecasts. They are less effective than permanent barriers, and remove access to homes. Temporary barriers are a nationally-managed resource, so there is also no guarantee that we would be able to access them, or get hold of the specialist staff to fit them, at short notice.

The movements of daily tides, with average weather conditions, can be predicted with accuracy. However, weather can have a profound effect on the tide and can result in variations between actual and predicted tide heights. Strong winds and abnormal atmospheric pressure are two of the main causes of alteration to tide heights. For example, a strong wind blowing on to land will result in a higher than predicted tide.

The accuracy of future tidal predictions will be further impacted by the effects of climate change. Sea level is already increasing around the UK coast, with storms increasing in frequency and magnitude. Model predictions indicate that sea level will continue to rise beyond 2100. The risk of flooding in Hambleton is therefore likely to increase in the future as a result. Significant uncertainties remain in forecasting the magnitude of this increase, both globally and locally.

I have further queries and questions, who can I address them to?

We will periodically update this document when we receive questions we haven't already answered.

If you have any questions not answered above and relating to the Hambleton Scheme please email:

cmblnc-pso@environment-agency.gov.uk

Please email any general enquiries to: inforequests.cmblnc@environment-agency.gov.uk