

RM001 Mr and Mrs Massey's objection to the Environment Agency's Application to vary the Scheme within the River Medway (Flood Relief) Act 1976

Environment Agency technical response, September 2020

1. You are concerned that physical monitoring of the water levels at Penshurst has not been used and so the modelling is incorrect.

Environment Agency response to your first concern:

The Environment Agency, and the wider hydrological industry, uses modelling software, mapping techniques and topographical and rainfall data to understand a wide range of catchment processes, how river catchments respond to different rainfall events, and to identify the impacts of these events.

The Environment Agency has flow gauges upstream of Rogues Hill, at Chafford Bridge and Colliers Land Bridge on the River Medway and at Penshurst and Vexour Bridge on the River Eden. This represents a significant investment in flow monitoring and allows us to understand the water levels on both rivers. Information from these gauging stations was used to calibrate the 2015 Medway flood model and is used to inform the operation of the Leigh Flood Storage Area (FSA).

Whilst it is always possible to further refine the calibration of any flood model by considering more baseline data, the Environment Agency is confident that the available modelled flood data is sufficient to understand the flood risk at Penshurst, and additional flow gauging data from closer to Penshurst would align with the outputs of the 2015 Medway flood model. However, in response to the concern within the community in Penshurst that the effect of operation of the FSA on flood levels is not reliably predicted through our modelling, we are looking to provide an additional depth gauge in Penshurst, downstream of Rogues Hill. This will provide definitive data on this issue, and will hopefully provide the reassurance sought by the community.

In addition to the 2015 Medway flood model, the Environment Agency has photographs and data showing the extent of land flooded during previous events, and staff observed the flooding at Penshurst in February 2020 to understand the extent of flooding at this location. The timing and extent of the flooding in February 2020 was as predicted by the model.

2. You are concerned that incorrect information has been presented, particularly around the extent of natural flooding occurring in Penshurst village

Environment Agency response to your second concern:

There are historical reports of flooding in Penshurst which occurred prior to the construction of the FSA, demonstrating that the area is affected by natural flooding. Indeed, the FSA itself was constructed in response to the 1968 flood when the flooding at Rogues Hill was so severe that the road bridge over the River Medway was damaged and a temporary bridge had to be installed. The photograph below from a newspaper article (Figure 1) shows flooding on Rogues Hill in 1937. These events demonstrate that Rogues Hill was vulnerable to flooding prior to the construction of the FSA.

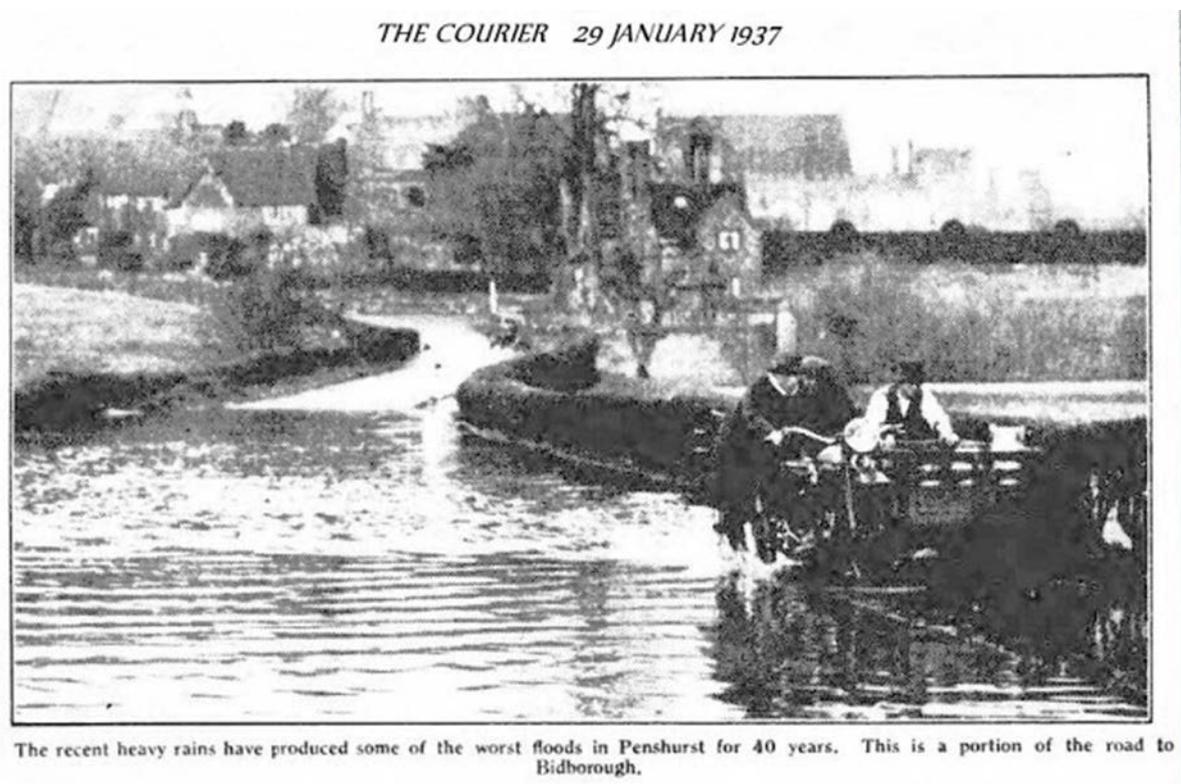


Figure 1: Flooding of Rogues Hill in 1937

The depth and timing of flooding at Rogues Hill is principally dictated by upstream flows. The following photographs demonstrate this.

The first photograph, below, (Figure 2) was taken in the garden of Colquhouns Cottage (next door to your garden) at 14:12 on 20 December 2019. It shows the water level at approximately 29.0m AOD (metres above Ordnance Datum). Impoundment of the FSA didn't begin until 15:30 on the same day.



Figure 2: Flooding of the garden of Colquhouns Cottage, 14:12 on 20 December 2019

The next two photographs (Figures 3 and 4) were taken from Rogues Hill on 16 February 2020. Figure 3 shows the fields immediately upstream of Rogues Hill and was taken at 12:51. Figure 4 was taken from the bridge on Rogues Hill over the River Medway and shows Bridge House. It was taken at 13:13. Impoundment of the FSA didn't begin until 17:15 the same day.



Figure 3: Flooding of the fields immediately upstream of Rogues Hill, 12:51 on 16 February 2020



Figure 4: River Medway and Bridge House, 13:13 on 16 February 2020

The final photograph (Figure 5), below, was taken 14 minutes earlier than Figure 3 (at 12:37 on 16 February 2020). It shows the bridge on Ensfield Road over the River Medway, 3.9km downstream of Penshurst. It is clear that the river was within bank at this location whilst at the same time there was significant flooding in Penshurst driven by upstream flows. The FSA was not in operation and all the flooding at this time in Penshurst was driven by flows from upstream.



Figure 5: The bridge on Ensfield Road over the River Medway, 12:37 on 16 February 2020

These photographs clearly show that the land around Penshurst floods irrespective of operation of the FSA. The FSA only operates when there are high flows in the river. Therefore the same conditions that drive flooding in Penshurst also determine operation of the FSA.

3. You are concerned that more of your land is flooding due to the existing FSA than is covered by the easement on your property.

Environment Agency response to your third concern:

For clarity, we understand that the 'easement' that you refer to is the agreement dated 25 September 1978, between Southern Water Authority and you. We agree that more of your land is affected by flooding than is shaded blue on the plan in that agreement. However, the flooding you experience is both natural flooding, and caused by the operation of the FSA (up to 0.1m).

The plan does not limit the area of land that can be flooded. Instead it defines the area covered by the agreement, where full and final compensation has been paid for any damage caused as a result of the operation of the FSA. The consideration paid for the agreement also compensated you for the restrictions set out in the agreement, which restrict activities within that area that would interfere with the flow of flood water.

As a result of the 2015 Medway flood model, we know that more land is affected by the operation of the existing FSA than was covered by the 1978 agreement. On the occasions where operation of the FSA has caused damage to areas not covered by agreements, the Environment Agency has paid compensation for that damage. This is in accordance with Section 17(4) of the River Medway (Flood Relief) Act 1976 (the 1976 Act).

Whilst the 1976 Act provides a right for those who suffer damage as a result of operation of the FSA to claim compensation on a case by case basis, we are willing to consider entering into a further agreement with you to fully and finally discharge this obligation. Please let us know if this is something you would wish to discuss further.

4. You are concerned that raising the flood barrier by 0.55m will flood your warehouse.

Environment Agency response to your fourth concern:

As explained in Section 4.2 of the Application (pages 24 and 25), whilst the 2015 Medway flood model indicates that in certain circumstances operation of the FSA can add up to 0.1m to the depth of flood water in your garden, the flood model also indicates that the proposal to increase the maximum impoundment level will not further increase the depth of flooding in this location.

This is illustrated in Figure 6 below. Figure 6 shows the increase in flooding depth from raising the Leigh FSA maximum impoundment level from 28.05m AOD to 28.6m AOD (measured at the main Leigh FSA embankment) during a 1.33% flood event. The map below has been taken from the Flood Risk Assessment for consistency. This map has been updated since the submission of the Application. Whilst it shows greater depth variation lower in the FSA, the point at which the effect of the expansion dissipates remains the same.

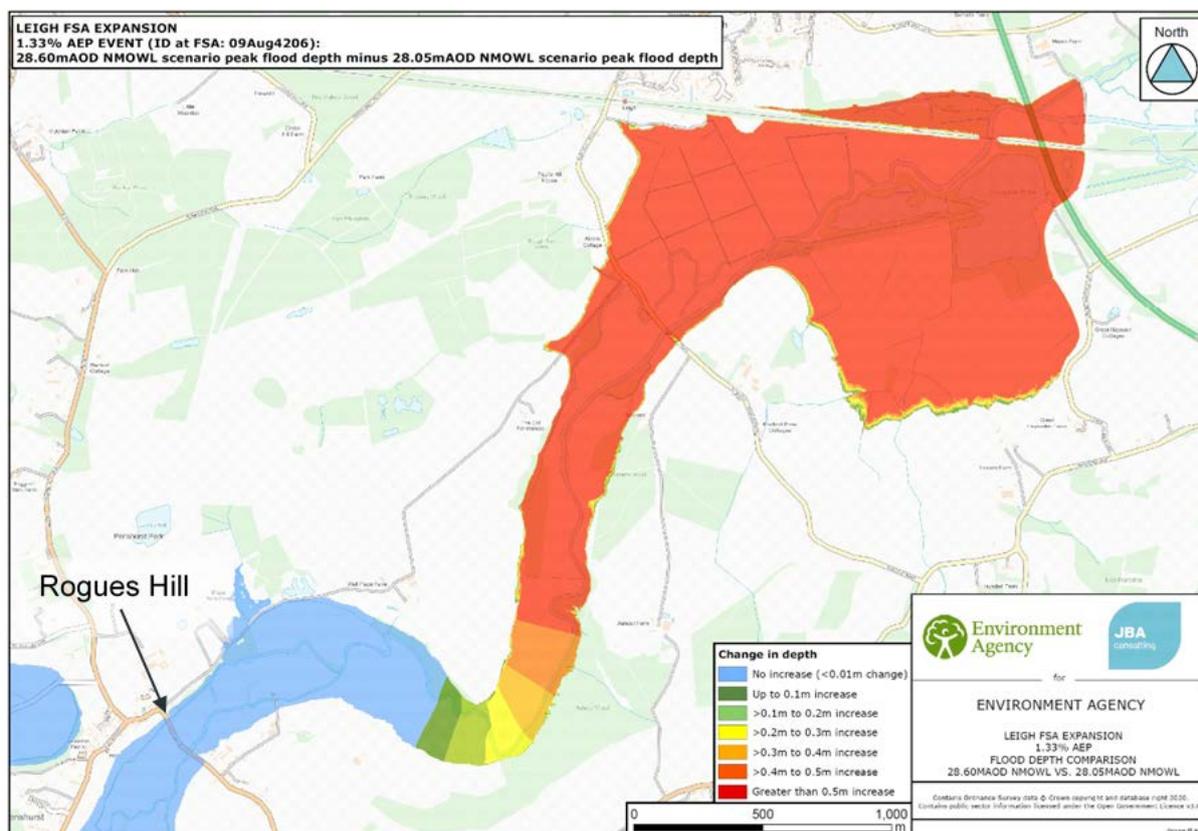


Figure 6: Increase in flood depth in a 1.33% flood event. 28.05m AOD vs 28.6m AOD

The Flood Risk Assessment was submitted with our planning application at the end of August 2020. The planning application reference number is 20/02463/FUL, and it is available for view at the Sevenoaks District Council planning portal:

<https://pa.sevenoaks.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=QFPV1WBK0LO00>

Every flood event is different, depending on a number of factors, including soil saturation and weather patterns. The modelled scenario in Figure 6 was chosen to demonstrate the impact of expanding the FSA because it shows the greatest change in flood depths.

5. You are concerned that the Environment Agency is not offering to pay compensation for any increase in flood risk resulting from the increase in maximum stored water level.

Environment Agency response to your fifth concern:

Section 17(4) of the 1976 Act obliges the Environment Agency to compensate you where damage is sustained as a result of operation of the FSA, and this obligation relates to both the existing arrangement and the proposed changes.

The Environment Agency accepts that in certain circumstances, operation of the existing FSA can increase the depth of flood water by up to 0.1m at your property and as set out in our response to your third concern, we are willing to consider entering into a further agreement with you to fully and finally discharge this obligation.

However, as set out in our response to your fourth concern, the Environment Agency does not agree that the proposal to increase the maximum stored water level will increase the flood risk at your property.

6. You are concerned about the wider impact the flooding of Rogues Hill has upon users of the road network (including emergency services and parents of pupils at the nursery and primary schools) and the risk to life this causes, and you consider that the Environment Agency should be addressing this issue.

Environment Agency response to your sixth concern:

As discussed in our response to your second concern, the land and roads around Penshurst flood irrespective of operation of the FSA. But we share your concerns over the impact of flooding in the village. There are a number of organisations involved in managing and responding to flood risk. The Environment Agency has powers to manage flood risk from main rivers and Kent County Council provide and manage highway drainage and roadside ditches. Other organisations and risk management authorities also have roles in managing and responding to flooding.

The risk of flooding in the natural floodplain cannot be eliminated. Warning and informing presents the only viable approach to the management of the risk to road users.

We have made an offer to Penshurst Parish Council to fund the National Flood Forum to help the local community to set up a flood action group where the concerns of the community can be raised with all of the organisations involved in managing flood risk so that ways to mitigate the impact and improve the resilience of the community to flooding can be explored together.