

River Medway (Flood Relief) Act 1976

Inquiry into the Environment Agency's revised Scheme for the Leigh Flood Storage Area, Kent

Statement of Case

Appendix 2 - Objections to the Revised Scheme

Date: 21/12/2020

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PENSHURST PARISH COUNCIL
WINDMILL FARM, CHEVENING ROAD, CHIPSTEAD
SEVENOAKS, KENT TN13 2SA
TEL NO/FAX NO: 01732 457541

19 June 2020

Defra Floods Casework Team
Nature and Place Based Solutions Team
Flood and Coastal Erosion Risk Management
Department for Environment, Food and Rural Affairs (Defra)
Seacole Block
3rd Floor – South West Quadrant
2 Marsham Street
London SW1P 4DF

Dear Sirs

**Submission to Defra of the Environment Agency's application to amend the Leigh Flood
Storage Area maximum stored water level**

With reference to Mr Tim Connell's letter dated 8 June regarding the above please find enclosed the response of Penhurst Parish Council.

I confirm I have also forwarded this response via email to: FloodsCasework@defra.gov.uk as requested.

For and on behalf of
Penhurst Parish Council

E M Divall (Mrs)
Administrative Officer

Submission of the Environment Agency's application to vary the Scheme within the River Medway (Flood Relief) Act 1976
Leigh Expansion Scheme - Points of Concern

Within the parish of Penshurst there are 4 river crossings: the River Medway at Chafford Bridge, Chafford Lane; the River Medway at Colliers Land Bridge, B2188; the River Eden at Long Bridge, B2188; the river Medway at Rogues Hill, B2176.

Roads generally flood and become impassable in the following order: 1) Chafford Bridge, 2) Colliers Land Bridge, 3) Rogues Hill, 4) Long Bridge.

All of these crossings have been flooded at least twice during the recent heavy rains. The depth of water prevented any access via these routes, leaving around 140 properties in New Road, Saints Hill, Smarts Hill, Coldharbour Road, Nunnery Lane, Grove Road, and Walters Green completely cut off. The Environment Agency claim that an increase in flood catchment area will not lead to an increase in the depth of floodwater but will lead to roads being flooded for a longer period. It must be remembered that this will reduce access also for all form of safety vehicles, emergency services, buses or any other form of public transport.

The River Eden joins the Medway between the B2188 at Long Bridge and the B2176 at Rogues Hill. The Environment Agency do not measure the depth of floodwater at Rogues Hill but instead rely on data from monitoring points upstream on both rivers. This ought to be a crucial area to monitor but it did not appear to be the case that the EA were aware of the extent of the flooding on occasions as no actual measurement had been taken.

In view of the anticipated increase in predicted rainfall of between 20% and 30% in the future, this situation and its subsequent problems will not improve, it will only deteriorate.

Earlier consultation with Kent Highways would have been prudent in view of the flooding impact on all crossing points during the current problems, this issue could have been taken into account and provided a more realistic result of the EA measurements and investigations. It is not good enough for the EA to advise parishioners to contact Highways should the area flood in future, it cannot be the responsibility of Highways to deal with this issue.

It is noted that as the EA did not take the recent problems into account in their measurements, then surely this gives little credence to their accuracy for future reference in decisions relating to the Leigh Expansion Scheme. It must call into question whether due diligence was used in this exercise when investigating the anticipated flood water.

The EA comment that Penshurst lies in a natural flood plain is accurate but, taking into account recent experiences, future use of the barrier will exacerbate the situation and cause flooding of the road to be on a more regular basis and have a more dramatic impact.

It would seem that the EA comment regarding additional monitoring to that currently undertaken should be more than considered, it should be introduced promptly.

We trust the above will be taken into account in any decision-making process when passed to the Minister for consideration.

FloodsCasework@defra.gov.uk

By email

Tel No: 01732 227000

Ask for: Aaron Hill

Email: aaron.hill@sevenoaks.gov.uk

My Ref: PA/20/00187

Date: 9 July 2020

Dear Sir/Madam

**RIVER MEDWAY (FLOOD RELIEF) ACT 1976
REVISED SCHEME FOR THE OPERATION OF SLUICE GATES IN ACCORDANCE WITH
SECTION 17 OF THE ACT**

Development: Representation to DEFRA to increase the stored water level within the Leigh flood storage area during a flood event.

On the 08 June 2020, the Council received notification from the Environment Agency on their intention to make a submission of an application to yourselves to amend the Leigh Flood Storage Area maximum stored water level and expressed that any representation we wish to make should be sent to you.

After reviewing the Environment Agency submission, we have the following representation to make.

It is understood that the Environment Agency are proposing to increase the maximum level to which water can be stored at Leigh flood storage area. At present they are only permitted to hold flood water at Leigh Flood Barrier up to 28.05m Above Ordnance Datum Newlyn (AODN) and are proposing to increase the flood water storage level to 28.6m AODN, this is 55cm higher to what is currently permitted.

Upon reviewing the Environment Agency submission providing the provision of a wave wall is implemented in full at Pauls Farm in Leigh prior to the increase of flood storage water level, we raise no objection to the revised scheme and recognise the significant benefits the increased flood storage levels will provide to the local area.

Yours sincerely

Aaron Hill
Team Leader - Development Services

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Defra Floods Casework Team
Nature and Place Based Solutions Team
Flood and Coastal Erosion Risk Management
Department for Environment, Food and Rural Affairs (Defra)
Seacole Block
3rd Floor – South West Quadrant
2 Marsham Street
London, SW1P 4DF

By e-mail FloodsCasework@defra.gov.uk

Dear Sir / Madam

Reference – Application by the Environment Agency Section 17 River Medway Flood Defence Act 1976

The CLA (Country Land & Business Association) represents landowners, farmers and rural businesses throughout England and Wales. Our members affected by the proposal have contacted us with concerns about the above application and its impact on their particular businesses.

We agree that flood risk management is imperative in this area of Kent. With the likely impacts of climate change increasing the risk of frequent rainfall events and subsequent flooding, we agree that measures must be taken to reduce flood risk, increase resilience and mitigate damage. However, having considered the issue and discussed the circumstances in this particular case with our members, we are concerned that the proposed works have not been undertaken with adequate consultation and discussion with the landowners and farmers directly affected by the proposals.

Any decisions on flood mitigation works that are likely to have a significant impact on the land or business of the landowner must be based on robust evidence and with all potential solutions fully explored. In this case it is clear that there are some outstanding questions around the technical analysis that must be resolved before a decision is made.

The CLA has worked with a number of members across England in similar circumstances who have previously had their land placed in 'washland agreements' where their land is flooded to prevent damage to urban areas downstream. Many of these members are now in situations where they are more frequently flooded than was anticipated when the agreement was made and have provided an invaluable service to the communities downstream, without adequate compensation for the damage to their land.

We would encourage the EA and Defra to ensure this does not happen in this situation, by basing this application on clear and robust evidence, consulting adequately with the landowners and addressing the impact of the scheme on the land.

We would fully support this application if agreements and mitigation opportunities are entered into before this application is confirmed and so would ask that this occur before any decision is made.

Yours faithfully

Tim Bamford MRICS

From:
Sent: 01 July 2020 12:21
To: SM-Defra-Floods Casework (DEFRA)
Subject: Leigh FSA Maximum Stored Water Level - Your Ref: Leigh FSA

Defra Floods Casework Team
Dept. of Environment, Food and Rural Affairs (Defra)
Seacole Block
3rd Floor, South West Quadrant,
2 Marsham Street
London SW1P 4DF
Dear Sir/Madam

Re: Submission to Defra Floods Casework Team -Ref: Leigh FSA

Objections and Comments.

My name is Mr Alan Massey and my wife and I, Mrs Janet Massey, have resided in the same premises for years and have extensive experience of the flooding that affects the area of our property and the Village of Penshurst.

Objections to proposal

We feel that this is a very poorly thought_out plan based on theoretical reports rather than real life evidence. Highways have not been consulted and no local monitoring has been done. Given that the Eden and the Medway rivers meet in the village, we feel it would be one of the first places that monitoring should have been undertaken to determine flood levels. There is a natural barrier formed by the road between the two bridges and it seemed logical that there should have been monitoring both sides of the road to assess flood levels. This should have been done right back to 1976. To now claim that is caused by natural flooding, with no actual measurements just theoretical projections, is flawed.

Personal Experience and Observations

We own a warehouse and land that borders the backwater from the River Medway. In 1976 there was an easement that permitted an area of our land to be flooded. This easement is on record and there is an outline plan with regard to the flood area. At the time of our purchase we were informed of this easement which had already been signed and agreed by the existing owners. We were clear on this matter and were also in agreement with this permission to flood a small area of our land. During the course of our tenure this agreement has been consistently broken. There have been numerous floods, usually around two to three a year, and in extreme conditions, the agreed area has been exceeded extensively. Some of the facts quoted in the documentation, that has been presented, are incorrect. The document states that large areas of the upper Medway are subject to extensive flooding prior to the operation of the FSA. This can be seen when the fields around the village flood and the water is held back by the two bridges and the road connecting them. When the FSA is operated, water backs up, and on a number of occasions, the water flows over the road and meets the water backing up from the FSA. This is usually taking between one and two hours. At the point where the water is flowing over the road, the water then backs up almost to our warehouse and also floods our neighbours' buildings. **This is the condition that already exists under the existing level of 28.05m and clearly breeches the terms of the easement to only flood a smaller area of land.**

On the occasions when the terms of the easement have been broken, compensation has been paid by the appropriate authorities without any argument to our neighbours. To state that "Whilst the impounded FSA would have an influence upstream, the land would already be flooded and the influence would be proportionately small" is incorrect. Damage to our property has already been incurred by the existing flood barrier. Raising the flood barrier by .55m will almost certainly mean my warehouse would be flooded and serious damage will occur to the building and goods inside.

Given all of the above, the Environmental Agency has already demonstrated a lack of integrity. They are not seeking our permission to flood our land but are using the existing easement and a claim that it would already be flooded naturally, to obfuscate you.

In the event that the Agency is allowed to higher the level, then I would need to make preparations for the inevitable flooding that would occur and therefore the buildings would need to be rebuilt in such a way that they were flood proof and that the goods inside would be protected. At the time of writing we have only had very loose discussions with regard to any compensation which we will seek. I feel that feel that they are using the natural flooding as an excuse not to pay appropriate compensation.

Impact on the Village

On the wider issue of the impact to the Village as a result of the higher level, I am extremely concerned for the health and safety of both the Villagers and traffic through the village. The water flowing over the road between the two bridges caused a major incident this year with the toppling of a mobile crane. The rate of flow is such that eventually the police arrived to ensure that no further vehicles attempted to cross. It is only a matter of time before we see a vehicle swept downstream with all the horrors attached to that. By using the term natural flooding, is this a way of avoiding their moral responsibility?

This road is a major artery through the village and is used by the emergency service vehicles on a regular basis. There is a nursery at Well Place and a school in the village. The traffic through the village is substantial and we feel that there is a moral hazard here.

Conclusion

Notwithstanding our personal loss/damage to our property my major concern is that the road between the two bridges has not been properly considered and the problem resolved. There is a serious risk to life and surely this must be one of the major considerations before the plan goes forward.

I look forward to your comments.

Kind regards

Alan Massey

River Medway (Flood Relief) Act 1976

The Environment Agency's application to vary the Scheme for the operation of the Leigh Flood Storage Area

Objection to the application

From Jenny & Kevin Storey



Photograph of December 2013 when House was flooded.

Taken after the Environment Agency operated the Leigh Barrier impounding the existing Flood Storage Area to its maximum depth of 28.05 metres AOD.

July 2020

1. Introduction

is the closest home to the River Medway in Penshurst, at its closest point it is just nine metres from the river bank. It is within the Flood Storage Area (FSA).

We have lived at for fifteen years. In 2010 the Environment Agency (EA) informed us that they had a proposal to raise the height of the water level stored in the FSA. This proposal did not proceed. But in 2015 we received Newsletter No1 informing us that the proposal was now being funded and would be proceeding.

2. Fundamental reasons for Objection

2.1 We strongly object to this application to vary the Scheme for the operation of the Leigh Flood Storage Area. The EA has consistently failed to properly understand the effect that the operation of the FSA has on both House and Penshurst. Because of this lack of understanding it has developed a theoretical model of flood events that is fundamentally flawed. This has a knock on effect through the whole project.

2.2 Despite having had at least ten years to measure the actual flood levels at House and Penshurst, the EA has taken an entrenched position on its theoretical modelling and simply denies that raising the level of the FSA will have an adverse effect on House and Penshurst.

2.3 The River Eden joins the River Medway a few hundred metres upstream of House, and measurement of actual flood levels should have been taken after this confluence of two major Kent rivers to understand the effect that the operation of the FSA causes during times of flooding. Instead the EA relies on measuring actual flood levels at Colliers Land Bridge for the River Medway and Vexour Bridge for the River Eden and then estimating the effect after the confluence. This is a fundamental flaw. Modelling is only ever as good as the inputs into it, if the inputs are flawed, the outputs will also be flawed.

2.4 It is a disgrace that the EA have never measured actual flood levels after the confluence of the two rivers.

2.5 House has flooded 5 times since 2000. On every occasion, that flooding has been after the EA has commenced impounding of the FSA. We have submitted evidence of these five floods to the EA that shows the flooding took place after the EA started impounding of the FSA. These submissions are included in this document as Appendices A, B, C & D.

2.6 December 2013 was the first flood occasion for us and we struggled to get the EA to pay compensation for the losses incurred. In November 2019, five years and eleven months after the event, the EA finally admitted liability and paid us compensation. Yet in their application they still say that raising the level of the FSA will not have an adverse effect on us. There is a serious breakdown of communications within the EA.

2.7 Page 7 states *"There are no households within the additional area to be flooded."* This is simply untrue. House is within the existing FSA so must be within the enlarged FSA.

3. Flawed Process

3.1 Natural Flooding

We challenge the EA's assumption that "Natural Flooding" occurs rather than being the effect of impounding the FSA. In our experience as residents of the house most affected, this is simply not true. We have provided evidence to the EA that all floods from 2000 to 2020 at [redacted] House and the Village have occurred **after** the impounding of the FSA takes place. This flooding is greater than, and lasts for a longer duration than, any natural flooding.

3.2 Inconsistent standards

In the EA's Strategic Flood Policy it states that 1 in 100 years plus climate change is the scenario that should be defended against.

Throughout this project the EA have always quoted 1 in 100 years plus climate change as the scenario used.

In the application the EA have quoted a 1 in 75 years scenario. This conflicts with their own National Guidance.

3.3 Failure to gather evidence of actual flood levels

The EA have failed to measure the actual flood levels at [redacted] House specifically and Penshurst generally. Instead they have relied on theoretical modelling, which simply does not stand scrutiny when compared to the actual flood levels during impoundment of the FSA. The EA first raised the proposal to increase the FSA in 2010. Had they measured the flood levels then they would have actual data for the floods of 2013, 2019 & 2020. They failed to do this, instead they have relied on calculated flood levels and theoretical modelling. We have sent the EA the actual flood levels at [redacted] House but they have chosen to disregard these. Their arrogance as an organisation is unacceptable in today's UK culture of openness and accountability

3.4 Misleading statements

On Page 12 the EA state that they use "Better and more reliable gauging technology which provides more accurate information about actual river levels." Whilst this may be true, it is certainly not true in Penshurst. They have no gauging at all between the Leigh Barrier itself and Colliers Land [redacted] for the River Medway and Vexour Bridge for the River Eden, a distance of 8km and 5 km respectively. And there is no gauging at all after the confluence of these two rivers.

3.5 Flow Rates

The current Scheme allows the FSA to be used when the rate of flow in the River Medway exceeds 35 cubic metres per second. Since 2011 the EA have only used the FSA when the flow exceeds 75 cubic metres per second, as to "go too early" would leave them with no spare capacity. Yet they ask to retain the lower figure. This places a great risk on Penshurst. With an increased capacity they could start impounding of the FSA too early and this would increase flood levels at [redacted] House, (and Penshurst generally).

3.6 Biased letters of support

In the application the EA has submitted letters of support from many bodies. Not one person or organisation representing upstream communities have been invited to submit letters giving opposing views. For a Public Body this is unacceptable bias.

3.7 Failure to meet statutory obligation 1

The Environment Agency (EA) have not met the requirements of Section 17, Part II (e) of the River Medway (Flood Relief) Act 1976. The Act requires the EA to supply a copy of the revised scheme to "The Specified Interests" **BEFORE** submitting the scheme to the Minister for approval. The EA failed to do this. The scheme was submitted on the 10th June, but we did not receive the copy until after this, denying us the opportunity to (a) discuss the revised scheme with the EA and (b) to come to an agreement with them.

3.8 Failure to meet statutory obligation 2

The Environment Agency (EA) have not met the requirements Section 17, Part II (e) of the River Medway (Flood Relief) Act 1976. The Act required the EA to supply a **COPY** of the revised scheme to "The Specified Interests." The EA failed to do this. The copy supplied is not the same as that which has been submitted to the Minister. The revised scheme on the reverse of the letter dated 8th June contains 5 paragraphs, whereas the revised scheme submitted contains 4 paragraphs. Again as the scheme had already been submitted, we were denied an opportunity to (a) discuss the revised scheme with the EA and (b) to come to an agreement with them.

3.9 Communication Failure 1

The EA have consistently failed to listen to us, even when we have provided actual evidence of the flood levels at House when they have impounded the FSA. We eventually persuaded the EA to erect a Gauge Board on the river bank next to House. When they erected it we told them it was too short and would not be visible during a flood, they did nothing. In both the 2019 and 2020 floods the Gauge Board was under water. It is now July 2020 and the EA have still done nothing.



3.10 Communication Failure 2

There has been no meaningful discussion with residents nor the Parish Council. What communication there has been, has simply been the EA telling us that their Theoretical Model shows that they are not responsible.

The EA have failed to monitor, assess safety and accessibility within the Village and to identify solutions.

3.11 Disregard for local MP

Tom Tugendhat MP has been supportive of our vulnerable position within this proposal. He has raised our position with the EA but has always been told that they were discussing it with us, whilst this was not untrue, it implied that a solution was being agreed, when it was not.

3.12 Risk of Judicial Review

All of the above flaws in the process mean that any decision made on the EA's Application could be challenged by means of a Judicial Review. The residents of Penshurst have twice raised funds to pay a QC to challenge two national decisions via Judicial Review, one planning decision and one aviation decision. Both decisions were quashed due to failure in process.

4. House

4.1 Right to flood

There is a legal agreement (1985 Deed) that allows the EA to flood part of our property but not all of it, effectively they can flood the garden but not the house.

We raised the validity of the 1985 Deed with the EA, and in 2018 they confirmed in writing that there was a discrepancy within it but that they still considered it to be valid. In 2019 we asked the EA to raise this discrepancy with their legal counsel. In May 2020 we received a summary of that legal opinion but were told that it was privileged information and they would not allow us to see it. The EA is a public sector organisation and the project is a public one, we are taxpayers and it is wrong for the EA to withhold this legal opinion. They should operate with transparency.

4.2 Liability accepted and partial compensation paid

In 2013 the EA flooded House by 0.5 metre when they impounded the FSA. When we contacted them to receive compensation, we were told that they did not have a procedure to pay compensation, despite it being a legal requirement of The River Medway (Flood Relief) Act 1976 for them to do so. We continued to press our case over a period of years, they were then told by their own advisors that they had to pay compensation, and finally in November 2019 the EA accepted liability and paid us compensation. The amount claimed was the sum of individual elements, for two elements the EA only paid us 50%. This was unlawful as The River Medway (Flood Relief) Act 1976 specifically states that full compensation shall be paid.

4.3 EA to purchase House

The EA produced a Technical Note that showed the forecast flood levels at House. This was so serious that we offered to sell House to the EA. The EA commissioned two Estate Agents/Surveyors to provide full Red Book Valuations of the Open Market Value (OMV) of House. After we were given copies of the valuations the EA ceased communicating with us. After a year and a formal complaint we were told that they would not be proceeding with the purchase of House. The Technical Note is at Appendix E

4.4 Flooding of Household

Page 24 of the application states that there are no households within the additional area to be flooded. This conflicts with the Technical Note that the EA produced and gave to us. It states that their forecast is that House will flood to a depth of 1.4 metres. The Technical Note is at Appendix E

4.5 Flood Duration

On page 25 of the application the EA state that the enlarged FSA will only take one day longer to return to normal. This conflicts with the Technical Note the EA produced and sent to us, that states that it would be up to 8 days. The Technical note is at Appendix E

4.6 Solution for House

We decided that we had to find a solution to the future flooding. We employed an architect who submitted a planning application to demolish the lowest part of House and to abandon the ground floor, re-providing the same space lost with a raised extension to the rear, as well as raising the garage and driveway. This innovative and permanent solution would give House resilience to the worst case flood level that the EA had calculated. The EA supported this planning application and it was granted in April 2019.

4.7 Funding of House Solution

On 16th June 2020 the EA invited us to submit a proposal for them to make a contribution to the cost of implementing the above solution. The EA should have reached agreement with us before they submitted this application.

5. Penshurst Village

5.1 Risk of Death

Rogues Hill is a major route into and through the Village. It is the route used by the Fire Brigade, Police and Ambulance Service responding to emergency calls. It is also used by school buses and village traffic. When the EA impound the FSA this road floods to a depth of up to 1 metre, making it impassable, yet vehicles still attempt to pass. Raising the level of the FSA can only increase this flooding. This would create a **Moral Hazard**, with the potential for death. The water flow is known to be in excess of 70 cubic metres per second and should a school bus attempt to go through the flood, it could easily be carried away downstream. This risk of multiple death is high. The EA have merely said that it is the responsibility of the Highways Agency. The **Grenfell disaster** has taught us that Moral Hazards can prove fatal years later for many innocent members of the public.

5.2 Disregard for Penshurst Estate Residents

When the Leigh FSA was built in 1982 the EA's predecessor identified the risk of access to properties on the Penshurst Estate, and paid for the construction of a concrete road to ensure safe access. The EA's proposal to raise the height of the FSA now places access via that same concrete road at risk. On Page 21 the EA deny this problem, but say there may be scope to help . This is typical of the condescending attitude throughout both communications and the application. They have failed to provide a solution to a problem of their creation. A problem that affects not just six residential properties and farm buildings but also a nursery school with many children in its care.

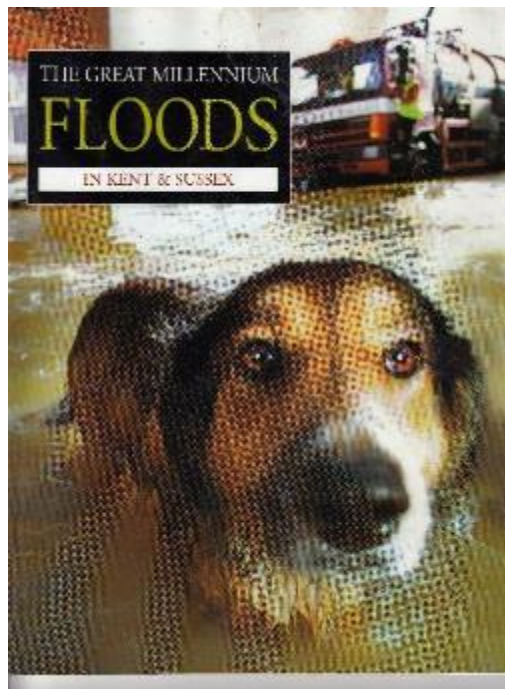
5.3 Disregard for High Street Properties

Flooding will affect properties on High Street. There are buildings used for warehousing, hobbies and garages to the rear of these properties. Increased flooding will cause damage to property and access problems. One of these properties also claimed compensation for flooding caused by the EA's impounding of the FSA in December 2013. Early in 2020 the EA admitted liability and paid compensation to the owner of the property.

Appendix A

House
Rogues Hill
Penshurst
Kent
TN11 8BQ

Evidence of flooding 2000 and 2002



Flood of October 2000

Kevin Storey 3rd March 2020

Introduction

On the 2nd March 2020 at a meeting between the Environment Agency (Tim Connell) Dalcour Maclaren (Jonathan Young) and co-owner and resident of House (Kevin Storey) the question of whether House was flooded in the year 2000 was asked. This came from anecdotal evidence given to Jonathan Young whilst consulting with residents of Penshurst.

In addition Kevin Storey who, with his wife, purchased House in November 2004 recalled the vendors confirming that the property had previously flooded. Kevin Storey agreed to review the legal documentation, in particular the responses to the pre contract enquiries to determine when this was.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21 of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *“Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal.”*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of House. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house.

This legal agreement is known as the 1985 deed.

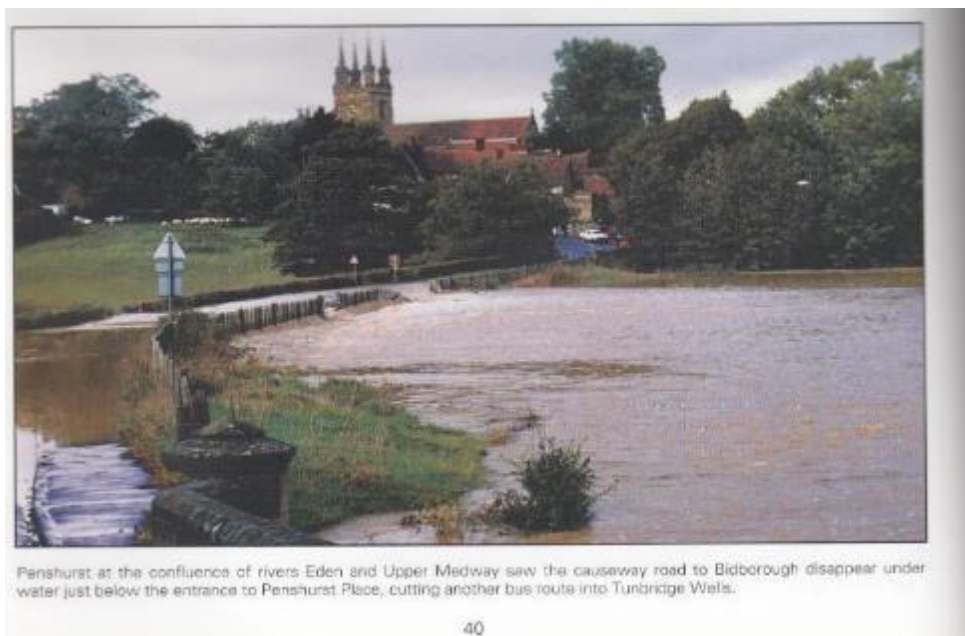
Confirmation of Flooding October 2000

A book titled *“The Great Millennium Floods in Kent & Sussex”* was published by Courier Newspapers shortly after the floods of 2000 (ISBN 0-9539832-0-X) This book comprises 133 photographs of flooded areas supported by narrative.

On page 40 there is a photograph of the bridge next to House in flood.

On page 42 there is a photograph of the road from Penshurst to Fordcombe in flood.

Photograph on page 40 of “*The Great Millennium Floods in Kent & Sussex*”



House is situated just downstream of the confluence of the river Medway and the River Eden.

In December 2013 House flooded to 29.5 m AOD. This flooded property marked white on the deed. The Environment Agency paid compensation for this flooding.

This photograph on page 40 shows the flood level to be close to the bridge. It also shows the flood level against the metal gate to the field on the left hand side of the photograph.

These are the two points of reference used for comparison. By comparison with a similar photograph taken in December 2013 it can be seen that the flood levels are very similar.

The October 2000 flood level can therefore be determined to be approximately 29.5 M AOD at House. This would have flooded the property marked white in the 1985 deed by approximately 0.5 metre.

Photograph taken in December 2013

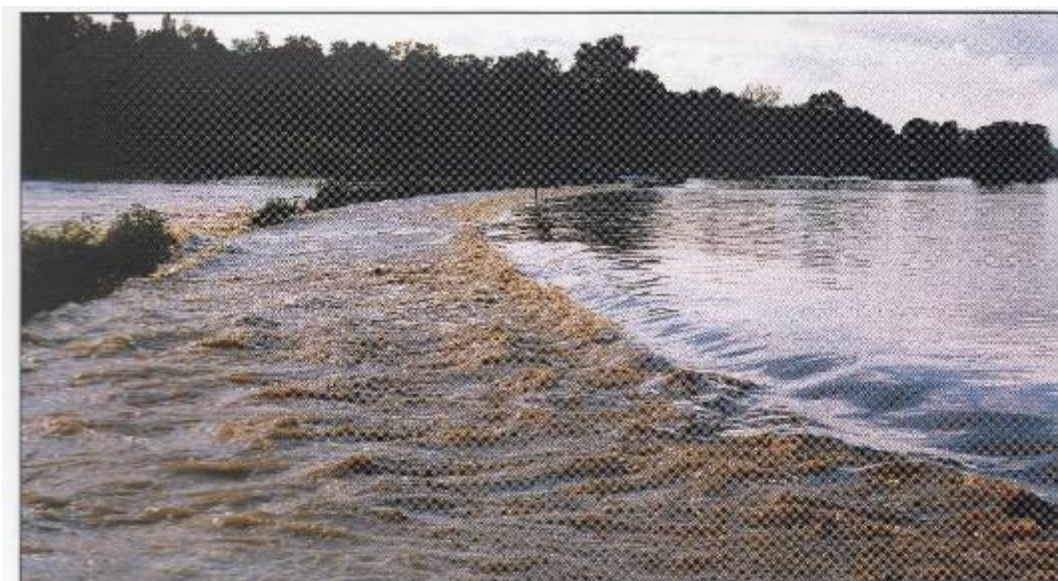


Photograph on page 42 of *"The Great Millennium Floods in Kent & Sussex"*

This is a photograph showing the River Medway heavily flooded across the road from Penshurst to Fordcombe in October 2000. The caption states that the road had to be closed.

This level of flooding is greater than I have seen during the fifteen years that we have lived in Penshurst.

This evidence of the flooding of October 2000 shows that this was a very serious flood. This supports the comparison made between October 2000 and December 2013 flood levels.



The road between Penshurst and Fordcombe which was closed after the river burst its banks.

Confirmation of Flooding 2002

A review of the legal documentation provided to Kevin & Jenny Storey when they purchased [redacted] House in November 2004 has been undertaken.

The responses to the pre contract enquiries included confirmation from the vendors that [redacted] House did flood in 2002. They also confirmed that the flooding extended into the kitchen.

The J C White survey of [redacted] House, commissioned by the Environment Agency in July 2018, identifies the kitchen floor level to be 29 m AOD. It also identifies that property marked white in the 1985 deed is at 29 m AOD.

The 2002 flood level can therefore be confirmed to be greater than 29 m AOD. Therefore the flood extended to property marked white in the 1985 deed.

Conclusion

From the above evidence, [redacted] House flooded to levels between 29m AOD and 29.5 m AOD in both October 2000 and in 2002.

Both of these flood events extended into property marked white in the 1985 deed.

Appendix B

House
Rogues Hill
Penshurst
Kent
TN11 8BQ

Claim for compensation



Flood of December 2013

Introduction

House is situated next to the River Medway in Penshurst. On the 24th December 2013 the Environment Agency operated the Leigh Barrier so as to store water in the Flood Storage Area (FSA) at the maximum legal height at the barrier of 28.05 metres AOD. This caused flooding at House, some damage was avoided by taking mitigating action but some damage was incurred. This claim is for compensation for the relevant damages incurred. The flood level at House was 29.5 metres AOD.

House has different floor levels on the ground floor. The kitchen is at 29 metres AOD, the lounge is at 29.4 metres AOD and the dining room is at 29.5 metres AOD.

HR Wallingford was commissioned by the Environment Agency to produce an independent audit of the operation of the FSA in the December 2013 flood. It identified that the impounding of the FSA started at 05.55 on 24th December 2013 and lasted until 20.40 on the 26th December 2013.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21 of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *“Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal.”*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of House. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house

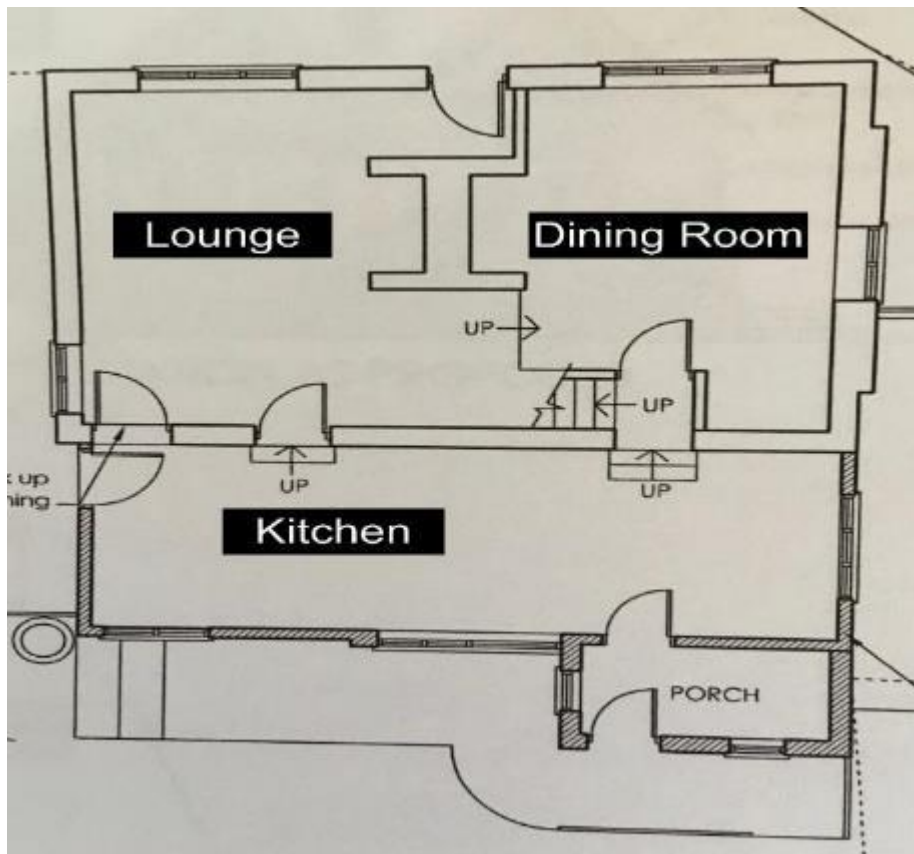
Compensation is sought for damage only in respect of land not marked blue.

No compensation is sought for damage in respect of land marked blue.

Layout of House

The drawing below shows the Kitchen and the Lounge that flooded. It also shows the Dining Room that did not flood internally, although all external walls were flooded as the property was encircled by flood water.

Flood water entered the Lounge from the two interconnecting doors between it and the Kitchen as well as coming in the front door.



The two interconnecting doors between Lounge and Kitchen where floodwater entered the Lounge



Floodwater also entered the Lounge through the front door



Mitigating works

At 2 am on Christmas Eve the hourly increases in the water level indicated that the main house would flood and that it was time to remove items from the ground floor to the 1st and 2nd floors. These items included rugs, small furniture, loose items, books and soft furnishings. This was a labour intensive exercise and took about 6 hours, but proved to be effective in reducing the damage to a minimum. The House was the first priority. Second priority were our cars, which were removed from our driveway and parked on the road on higher ground. Third priority was the garage but the flood levels to the rear of the house were then approximately 1 metre deep, making it unsafe to have waded through to get to the garage. Damage to the garage contents was mitigated on the 23rd December as small items in the garage had been lifted off the ground where possible and some larger items raised by 100mm wooden blocks, which proved to be insufficient.

Damages not sought

The sidecar fitted to the 1924 Norton was removed, it had suffered from water ingress, but only required cleaning and re-greasing of the wheel bearing. No long term damage was incurred.

Small items and tools in the garage were flooded but, were cleaned and dried with no permanent damage.

No claim is made for labour as no costs were incurred.

Damages incurred

Water flooded the Lounge to a level of 95mm causing damage to the plaster walls and some wooden architrave.

Water did not enter the Dining Room but the flood waters acting on the external walls caused damage to the plaster on the internal walls.

Water flooded the garage to a depth of 500mm. Inside the garage were a collection of Classic Motorcycles. These included:

- 1911 3 ½ hp Triumph fitted with a wicker sidecar. Registration number BK 574 This had been raised 100mm off the ground on wooden blocks.
- 1937 Velocette GTP. Registration number 608 UXC. This had been raised 100mm off the ground on wooden blocks.
- 1924 Norton 16H fitted with a Bramble sidecar. Registration number SV 7403
- 1929 Norton Model 19. Registration number BF 4012
- 1957 Matchless G3LCS. Registration number YKR 185

- 1960 Norton/Matchless Special. Registration number 6219 PX

The 1911 3 ½ hp Triumph fitted with a wicker sidecar is a very basic motorcycle and, although flooded was able to be stripped to remove all water and to re-grease its bearings, its magneto was dried and it ran again but the magneto should be stripped and reconditioned to ensure long term working.

The 1937 Velocette suffered water in the engine, clutch, gearbox and wheel bearings. The piston was rusted in the barrel. A new piston was sourced from the Velocette Owners Club Spares Scheme, the damaged barrel was sent to Autoworx Ltd to be honed to suit the new piston. The gearbox was drained and refilled with oil. The clutch now slips, requiring a strip down and new plates to be fitted.

The 1924 Norton will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

The 1929 Norton will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

The 1957 Matchless will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

The 1960 Norton/Matchless Special will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

A length of close boarded fencing and gravel boarding was displaced and damaged by the flood water

Compensation sought

Lounge & Dining Room

At the suggestion of Jonathan Young, Peter Cox were asked to inspect the damage to the plaster walls. They have submitted a full report (Copy attached separately) The cost to repair the plaster walls and architrave have been quoted at **£6,477.60**

Garage

1911 3 ½ hp Triumph fitted with a wicker sidecar. Cost of reconditioning magneto is **£250**

1937 Velocette GTP 608 UXC. From parts purchased and parts still to be purchased the cost of full repair will be **£450.00**

1924 Norton 16H Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

1929 Norton Model 19. Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

1957 Matchless G3LCS. Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

1960 Norton/Matchless Special. Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

Fencing

2.5 metres of close boarded fencing at £30 per metre has been estimated to be **£75**

Total compensation sought £9,052.60

Without the mitigating action that was taken the claim for compensation would have been much higher.

The compensation sought includes estimates but is on a full and final settlement basis for the December 2013 flood.

Chronological List of Photographs

Photo #1932

Date 24 December 2013

Time 06:46

Christmas Eve. Mitigating works in the Lounge



Photo #1940

Date 24 December 2013

Time 08:14

Christmas Eve. Floodwater at the front (East) of

House



Photo #1944

Date 24 December 2013

Time 08:18

Christmas Eve. Floodwater at the front (East) of House



Photo #1945

Date 24 December 2013

Time 08:35

Christmas Eve. Floodwater to the East of

House



Photo #1947

Date 24 December 2013

Time 08:52

Christmas Eve. Mitigating works in the Dining Room



Photo #1948

Date 24 December 2013

Time 09:07

Christmas Eve. Flood water to the South East of House



Photo #1949

Date 24 December 2013

Time 09:08

Christmas Eve. Flood water to the South of

House



Photo #1950

Date 24 December 2013

Time 09:08

Christmas Eve. Flood water to the South West of

House



Photo #1951

Date 24 December 2013

Time 09:09

Christmas Eve. Flood water to the North West of House



Photo #1955

Date 24 December 2013

Time 09:51

Christmas Eve. Flood water level at the Workshop and Garage



Photo #1956

Date 24 December 2013

Time 09:51

Christmas Eve. Flood water to the South of

House



Photo #1957

Date 24 December 2013

Time 09:52

Christmas Eve. Peak flood water level in the Kitchen



Photo #1958

Date 24 December 2013

Time 09:52

Christmas Eve. Peak flood water level in the Kitchen



Photo #1961

Date 25 December 2013

Time 08:17

Christmas Day. Loss of close boarded fence due to flood water



Photo #1962

Date 25 December 2013

Time 08:17

Christmas Day. Close boarded fence found in driveway



Photo #2023

Date 29 December 2013

Time 10:00

Christmas eve + 5 days. 1911 Triumph post flooding to a depth of 500mm



Photo #2024

Date 29 December 2013

Time 10:00

Christmas eve + 5 days. 1924 Norton & Sidecar post flooding to a depth of 500mm



Photo #2025

Date 29 December 2013

Time 10:01

Christmas eve + 5 days. Sodden board showing garage flood level of 500mm



Appendix C

House
Rogues Hill
Penshurst
Kent
TN11 8BQ

Evidence of flooding December 2019



Flood of December 2019

Introduction

House is situated next to the River Medway in Penshurst.

House has different floor levels on the ground floor. The kitchen is at 29 metres AOD, the lounge is at 29.4 metres AOD and the dining room is at 29.5 metres AOD.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21 of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *“Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal.”*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of House. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house

Flood levels

At 11 am on Friday 20th December the hourly increases in the water level indicated that the house and garage may flood. Mitigating action was taken to protect items in the house, our cars and items in our garage.

At 5pm on the 20th December 2019 the Environment Agency operated the Leigh Barrier so as to store water in the Flood Storage Area (FSA).

At 7pm the flood levels in House and its garage reached their maximum of 29.13 m AOD.

At 06.42 on Saturday the 21st December the FSA reached its maximum level for this flood event. The height at the barrier of the water level was 27.05 metres AOD. Details were kindly provided by David Lowe (Environment Agency).

Although the operation of the Leigh Barrier caused flooding at House, significant financial damage was avoided by us taking mitigating action.

Mitigating action

Items were moved from the ground floor to the 1st and 2nd floors. These items included rugs, small furniture, loose items, books and soft furnishings. This was a labour intensive exercise and took about 6 hours, but proved to be effective in reducing the damage to a minimum, one glass table top was broken during the move and the dishwasher failed due to the floodwater. The House was the first priority. Second priority were our cars, which were removed from our driveway and parked on higher ground. Third priority was the garage where items in the garage had been lifted off the ground, which proved to be sufficient to avoid any financial damage.

Conclusion

No financial claim is being made for the flooding caused by the operation of the Leigh Barrier for this flood event.

Mitigating action taken was labour intensive and physically demanding. Although we will always try to mitigate any loss, it must be considered that if we were away on a holiday during a future flood event, no mitigating action would be possible and a claim for damages would be a significant sum, probably in the tens of thousands (total loss of furniture, rugs, electrical items etc). We are also both retired and there will come a time when we would just not be physically capable of lifting and shifting the volume of items on the ground floor.

There is also another loss that we suffer. The loss of utility of our garage, we have built staging to keep vehicles up out of flood levels, but this means that the garage is now effectively permanently high level storage which restricts our use of it.

We ask the Environment Agency to recognise the flooding caused, and to confirm that they accept that the mitigating action taken for this flood event cannot always be relied upon.

Chronological List of Photographs

Photo #2705

Date 20 December 2019

Time 14:10

Floodwater by bridge



Photo #2727

Date 20 December 2019

Time 17:49

Floodwater in the garage. Not yet at maximum level.



Photo #2728

Date 20 December 2019

Time 17:49

Floodwater in the garage. Not yet at maximum level.



Photo #2731

Date 20 December 2019

Time 21:03

Floodwater in the kitchen. Shortly after maximum level.



Photo #2732

Date 20 December 2019

Time 21:03

Floodwater in kitchen. Shortly after maximum level.

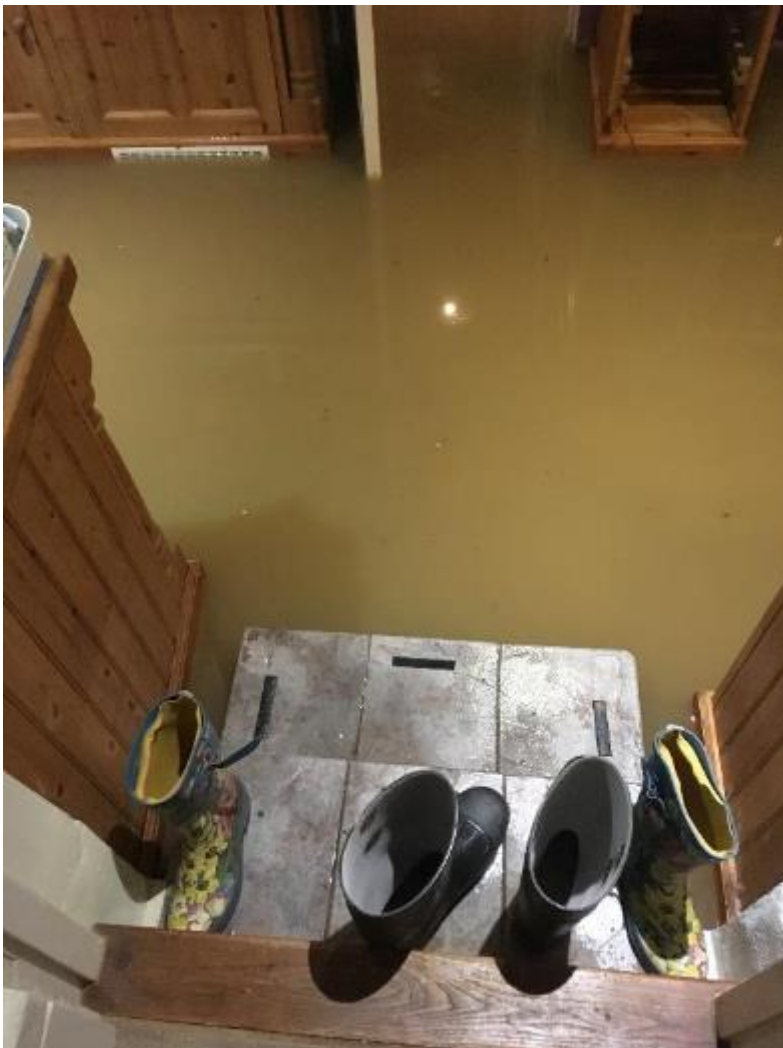


Photo #2733

Date 20 December 2019

Time 21:03

Floodwater in the kitchen. Shortly after maximum level.



Photo #2746

Date 22 December 2019

Time 11:14

Mitigating action taken. Two days after maximum flood level.



Photo #2748

Date 22 December 2019

Time 11:15

Mitigating action taken. Two days after maximum flood level.



Appendix D

House
Rogues Hill
Penshurst
Kent
TN11 8BQ

Evidence of flooding February 2020



Flood of February 2020

Introduction

House is situated next to the River Medway in Penshurst.

House has different floor levels on the ground floor. The kitchen is at 29 metres AOD, the lounge is at 29.4 metres AOD and the dining room is at 29.5 metres AOD.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21 of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *“Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal.”*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of House. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house

Flood levels

At 8 am on Sunday 16th February the hourly increases in the water level indicated that the house and garage may flood. Mitigating action was taken to protect items in the house, our cars and items in our garage.

At 5.30 pm on Sunday the 16th February the Environment Agency operated the Leigh Barrier so as to store water in the Flood Storage Area (FSA).

Between 11pm on Sunday the 16th February and 1 am on Monday the 17th February the flood levels in House and its garage reached their maximum of 29.13 m AOD.

At 15.44 on Monday the 17th February the FSA reached its maximum level for this flood event. The height at the barrier of the water level was 27.815 metres AOD. Details were kindly provided by David Lowe (Environment Agency).

Although the operation of the Leigh Barrier caused flooding at [redacted] House, significant financial damage was avoided by us taking mitigating action. This was the second flood event of the winter, the first being on Friday the 20th December 2019, it was also the second time that mitigating action avoided significant financial losses.

Mitigating action

Items were moved from the ground floor to the 1st and 2nd floors. These items included rugs, small furniture, loose items, books and soft furnishings. This was a labour intensive exercise and took about 6 hours, but proved to be effective in reducing the damage to a minimum, the fridge freezer suffered permanent failure due to the floodwater, some frozen food had to be discarded, a new fridge freezer will have to be purchased. The House was the first priority. Second priority were our cars, which were removed from our driveway and parked on higher ground. Third priority was the garage where items in the garage had been lifted off the ground, which proved to be sufficient to avoid any financial damage.

Conclusion

No formal financial claim is being made for the flooding caused by the operation of the Leigh Barrier for this flood event.

Mitigating action taken was labour intensive and physically demanding. Although we will always try to mitigate any loss, it must be considered that if we were away on a holiday during a future flood event, no mitigating action would be possible and a claim for damages would be a significant sum, probably in the tens of thousands (total loss of furniture, rugs, electrical items etc). We are also both retired and there will come a time when we would just not be physically capable of lifting and shifting the volume of items on the ground floor, or the garage.

There is also another loss that we suffer. The loss of utility of our garage, we have built staging to keep vehicles up out of flood levels, but this means that the garage is now effectively permanently high level storage which restricts our use of it. This second flood event proves that we cannot remove the staging after flood, for fear of a subsequent flood.

We ask the Environment Agency to recognise the flooding caused, and to confirm that they accept that the mitigating action taken for this flood event cannot always be relied upon.

Request for financial recompense

We would ask that the Environment Agency offer financial recompense for the small losses incurred in this flood and the flood of December 2019. It is accepted on our part that this would be a goodwill gesture by the Environment Agency as there is no legal necessity for them to do so. It would however be fair and reasonable as our not inconsiderable efforts and mitigating action have avoided significant financial losses.

Chronological List of Photographs

Photo #2821

Date 16 February 2020

Time 13:50

Mitigating action



Photo #2823

Date 16 February 2020

Time 13:50

Mitigating action



Photo #2821

Date 16 February 2020

Time 15:23

Floodwater in garden. Not yet at maximum level.



Photo #2843

Date 16 February 2020

Time 17:17

Floodwater in garden. Not yet at maximum level.



Photo #2845

Date 16 February 2020

Time 22:33

Floodwater in kitchen. Before maximum level.



Photo #2846

Date 16 February 2020

Time 22:33

Floodwater in the kitchen. Before maximum level.



Photo #2847

Date 16 February 2020

Time 22:33

Flood level in kitchen. Before maximum flood level.



Photo #2858

Date 17 February 2020

Time 12:56

Road closure to recover 40 tonne crane that suffered in the flood.



Photo #2862

Date 17 February 2020

Time 13:53

Garage after the flood. Mitigating action proved successful.



Photo #2863

Date 17 February 2020

Time 13:53

Garage after the flood. Mitigating action proved successful.



Appendix E

Project:	Leigh Expansion and Hildenborough Embankments Scheme		
Subject:	Penshurst modelled flood risk	Consultant:	VBA
Date:	June 2018	Version:	2

1. Purpose

This technical note outlines the modelled risk of flooding at and near to House, Rogues Hill, Penshurst under three Leigh Flood Storage Area (FSA) operational scenarios. This has been produced as part of the Leigh Expansion and Hildenborough Embankment Scheme (LEHES) which is currently being progressed by the Environment Agency and partner organisations.

2. Modelled events

Under the existing situation, the Environment Agency impound flood water in the Leigh storage area to a maximum level of 28.05m Above Ordnance Datum (AOD), measured at the main embankment near to the mechanical gates. The current study is investigating whether this storage level could be increased to 29m AOD to increase storage within the flood storage area. The upstream impact of both of these storage levels has been simulated in the hydraulic model.

The hydraulic model has also been used to understand the risk of flooding if there was no storage area. This is referred to as the undefended scenario. The Environment Agency do not intend to promote this option, but it provides an understanding of the 'natural' risk of flooding with no impoundment.

Six design flood events have been simulated for the two Leigh FSA storage levels, with two design flood events simulated for the undefended scenario. These cover a range of event probabilities. Maximum flood levels have then been extracted from each of the model results. These water levels have been analysed to assess the risk of flooding to House.

3. Ground and threshold levels

Approximate ground levels have been identified using Light Imaging, Detection and Ranging (LIDAR) data at the following key locations (Figure 1):

- Lowest point on Penshurst Road: 28.9m AOD
- Average ground level on floodplain upstream of Penshurst Road: 27.6m AOD

Threshold levels have been taken from survey data:

- Front threshold of House: 29.5m AOD
- Rear threshold of House: 29.1m AOD
- Outhouse building at House: 28.7m AOD



Figure 1. Locations of key ground and threshold elevations against which modelled flood levels are compared

4. Modelled flood risk

Impact of Penshurst Road

Penshurst Road is raised above the surrounding land, creating a causeway which restricts the natural flow of water across the floodplain. In lower order events, up to and including the 20% (1 in 5) annual probability flood, the modelled water level upstream of the road rises to approximately the same as the minimum road level (28.9m AOD) but does not exceed it. The restriction on floodplain flow caused by the road results in flood levels which are higher upstream of the road compared with those on the downstream side, increasing flood risk at

House. Although in larger events, water is modelled to overtop the road, the effects of the restriction on flow are still observed. It is this flow restriction which causes the differences in water levels upstream and downstream of the road illustrated in Tables 1 to 3 below.

Undefended scenario

Undefended modelled water levels are given in Table 1. These indicate that part of House would be at risk of internal flooding in the 5% (1 in 20) Annual Probability (AP) event

with no impoundment at Leigh. The front threshold of the property is exceeded for a 1% annual probability event with climate change but not in a 5% annual probability event.

Table 1. Undefended modelled water levels

Flood Event annual probability	Water levels near Bridge House (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
5% (1 in 20)	29.4	28.7
1% (1 in 100 + CC)	30.3	29.4

Existing Leigh Operation

Modelled water levels from the existing situation (storage at Leigh to 28.05m AOD) are given in Table 2. In the two events for which undefended water levels have been modelled (5%, and 1% with climate change annual probabilities), the water level near Bridge House is approximately 0.1m higher as a result of the impoundment at Leigh than for the Undefended model water level. This increase means that in the 5% (1 in 20) Annual Probability (AP) event, water levels are about equal to the front threshold of the property.

Table 2. Existing situation (storage at Leigh to 28.05m AOD) modelled water levels

Flood Event annual probability	Water levels near Bridge House (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
20% (1 in 5)	28.9	28.4
5% (1 in 20)	29.5	28.8
2% (1 in 50)	29.9	29.1
1.3% (1 in 75)	30.0	29.3
1% (1 in 100 +CC)	30.4	29.5
0.4% (1 in 250)	30.4	29.6

Proposed Increase Storage Option

Modelled water levels caused by raising the maximum flood storage at Leigh from to 29m AOD are given in Table 3. This illustrates that the change in maximum water level at Leigh has no impact on flood levels upstream at Penshurst.

Table 3. Proposed options (storage at Leigh increased to 29m AOD) modelled water levels

Flood Event annual probability	Water levels near Bridge House (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
20% (1 in 5)	28.9	28.4
5% (1 in 20)	29.5	28.8
2% (1 in 50)	29.9	29.1
1.3% (1 in 75)	30.0	29.3
1% (1 in 100 +CC)	30.4	29.5
0.4% (1 in 250)	30.4	29.7

Our Ref: DW:JS:100335.0001

7 July 2020

Defra Floods Casework Team
Nature and Place Based Solutions Team
Flood and Coastal Erosion Risk Management
Department for Environment, Food and Rural Affairs (Defra) Seacole Block
3rd Floor – South West Quadrant
2 Marsham Street
London, SW1P 4DF

By e-mail FloodsCasework@defra.gov.uk

Dear Sir/Madam

**Application by the Environment Agency
Section 17 River Medway Flood Defence Act 1976**

We act for Lord De L'Isle, the Trustees of the Penshurst Settled Lands Trust and the Executors of the Right Honourable William Philip Viscount De L'Isle's estate.

Our clients are the proprietors of land and buildings referred to for the purpose of this letter as the Penshurst Place Estate or the Estate. We enclose at Appendix A, a plan showing the full extent of the component parts of the Penshurst Place Estate.

We write in response to the application submitted by the Environment Agency ("the EA") to the Secretary of State pursuant to Section 17 of the River Medway (Flood Relief) Act 1976 ("the 1976 Act" to amend the approved 'Scheme' for the operation of the Leigh Flood Storage Area ("the Application").

For the reasons set out below our clients **object** to the Application.

Our clients fully support the EA's efforts to safeguard against the risk of flooding further downstream. However, they are concerned that:

- a. there are significant errors and omissions comprised within the technical analysis underpinning the Application;
- b. the potential impact of the revised Scheme on the operation of the Penshurst Place Estate has been significantly understated; and
- c. no satisfactory mitigation or accommodation works have been proposed to address the risk to the Penshurst Place Estate and its occupiers.

1. Status of the Penshurst Estate for the purpose of the Application

The 1976 Act authorised the Southern Water Authority to operate a flood storage area to control the flow of the River Medway when considered necessary to prevent, alleviate or otherwise control floods (s17 1(a)) ("the Flood Storage Area"). The EA is the statutory successor to the Southern Water Authority for the purposes of the 1976 Act.

The 1976 Act operates to permit the EA to hold and store flood water behind an embankment across the River Medway at Leigh within the Flood Storage Area. A control structure with sluice gates enables the EA to control the flow of the river and allows the EA to release the held water when the flooding subsides.

The River Medway runs through the Penshurst Estate and a significant proportion of land within the Flood Storage Area falls within the Penshurst Place Estate boundaries.

Section 17(3) (a) of the 1976 Act requires the EA to operate the sluice gates in accordance with the provisions of a "Scheme" to be made by the EA and approved by the Secretary of State.

The Scheme is required to include provision for the minimum flow rate below which the gates shall not be operated, the maximum level or quantity of water to be retained in the flood storage area and the rate of flow to be discharged into the river from the sluice gates.

Section 13(3) (c) (d) and (e) of the 1976 Act enable the EA to seek to vary or replace the approved Scheme but require the EA to notify various specified bodies including any persons whose interests are "likely to be substantially affected by the replacement Scheme". Such persons are defined as "specified interests" under the 1976 Act.

For the purpose of the 1976 Act the EA has acknowledged that the Penshurst Place Estate represents a "specified interest". As such the EA has supplied our clients with a copy of the Application and the proposed replacement Scheme.

Section 17(3) (f) empowers the Secretary of State to approve the revised Scheme but provides that where representations are made to him within one month of the date on which the Scheme was submitted and those representations have not been disposed of he shall cause a local inquiry to be held.

This letter represents the Estate's representations for the purpose of Section 17(3) (f) of the 1976 Act.

2. Overview of the Penshurst Place Estate

The Penshurst Place Estate comprises approximately 2,500 acres. The Grade 1 listed main house dates from 1341 and the Estate has been owned by the Sidney family since 1552.

The Estate includes four main ownership elements.

First, the Penshurst Operating Partnership. This includes the main house and gardens, 10 residential properties, 13 commercial properties and a village shop.

The main house and gardens operate 363 days per year. They are hired for weddings, as a filming location and for other events. In addition to the main house and gardens, there is an adventure playground, woodland trail, a gift shop, café and restaurant.

Approximately 80,000 day visitors visit the house and gardens every year, whilst the gift shop and cafe are heavily used by walkers, cyclists and local residents not visiting the gardens. In addition 25,000 visitors attend weddings and other organised functions.

Second, the Penshurst Property Partnership, which includes 43 residential and 5 commercial properties including a nursery school.

Third, the Penshurst Place Maintenance Fund which incorporates two residential properties.

Finally, the Penshurst Settled Lands Trust which represents the remainder of the Estate, including farmland (let out under farming business tenancies), woodland and various estate roads.

Within that part of the Estate which falls within the Flood Storage Area is an estate road known as the Concrete Road – shown coloured blue on the plans at Appendix A. The Concrete Road is on the Regional Cycle Route 12.

The Concrete Road provides access from the public highway to the house and gardens visitor entrance, the Estate Gift Shop and Cafe as well as for wedding and events.

The Concrete Road also provides access to 11 residential properties and the nursery. In times of flooding this is the sole access to these properties.

3. Errors and Omissions comprised within the Application

The Application seeks to amend the existing Scheme to increase the maximum stored water level within the Flood Storage Area from 28.05m AOD to 28.6m AOD.

Our clients do not consider that the Application has properly assessed the impact of the increased storage levels on the Estate.

First, there is an inconsistency within the EA's own analysis.

At page 21 of the Application, the EA asserts that *"the anticipated maximum flood water levels will not increase near Penshurst Place as a result of the Revised Scheme"*.

However, this conclusion is inconsistent with Section 4.1 at page 23 of the Application which states that:

"Modelling shows that the FSA adds approximately 0.1m in depth to the natural floodwater level to land around Penshurst."

This inconsistency undermines the confidence that can be placed on the EA's overall conclusions.

Second, prior to the submission of the Application, the Estate instructed WSP to engage with the EA and its consultants to enable it to properly understand the impact of the amended Scheme on the Estate.

Following their instruction, WSP reviewed the proposals and sought to engage with the EA and its advisors from September 2019 in order to properly assess the impact on the Estate.

WSP raised a number of issues and sought clarification on a number of points from the EA regarding the proposed modelling the EA had undertaken. As a result of these discussions it became apparent that:

- i. The original model was focused on flood storage immediately behind the barrier rather than at Penshurst;
- ii. The EA had used flow rates from 2017 rather than the recorded peak flood event in 2013, which would have been more appropriate in order to assess a worst-case scenario, the analysis shows significant differences in the inflow characteristics of the models used and much lower peak inflows to the model than earlier recorded events;
- iii. The model had been run assuming a water storage level of 28.395m rather than the proposed maximum permitted impoundment of 28.6m
- iv. The EA had assumed a design life of the Scheme of only 40 years and limited the assessment to a 1 in 75 year design event.

Throughout this dialogue the EA's responses to the issues raised were often inconsistent and contradictory.

WSP has concluded that there is considerable uncertainty in the results of the modelling on which the Application is based particularly at the location of the Estate. This is due to many factors that have not been resolved such as: inflow rates which now appear to be significantly lower than in previous modelling work; model parameters that are linked to the improvement works design life and an operational level based on the cost benefit analysis carried out by the EA rather than the potential risk that occurs at any one location.

The EA has not, to date, satisfactorily demonstrated to WSP that the impact on the Estate has been properly modelled and understood. In turn, WSP's concerns have not been addressed in the Application.

The EA's modelling that underpins its conclusion that the revised Scheme will not result in increased flooding at the Estate is based on an assessment of a 1 in 75-year event. This approach is inadequate and contrary to current flood risk assessment guidance and accepted best practice. WSP's view is that the Application should have properly assessed the 1 in 100 year plus 25% for climate change scenario. This is a requirement of the EA in respect of many planning applications where it is a statutory consultee. No explanation has been provided as to why this modelling has not been presented as part of the Application.

As part of the discussions prior to the submission of Application, the EA's consultants did provide an assessment of the 1 in 100 year plus 25% for climate change scenario. A copy of this modelling is attached as Appendix B.

This assessment indicated that in this scenario there is likely to be an increase of 100mm in flood levels within the Estate, including at the Concrete Road. It also indicates that the Flood Storage Area will extend beyond its current boundaries within the Estate – i.e. more land within the Estate will be flooded as a result of the amended Scheme. Neither of these impacts has been properly acknowledged within the Application material.

Fundamentally, the EA's approach is based on a 40 year design life of the Scheme. WSP consider that this is an inappropriate position to take and that the Scheme should be assessed based on a 100 year plus duration with appropriate climate change allowances.

The Estate's position is therefore that the EA's assertion in the Application that the revised Scheme will not increase water levels at Penshurst has not been substantiated.

Furthermore, the information provided prior to the submission of the Application demonstrates that there is likely to be an increase in the level of flooding at the Estate and in particular at the Concrete Road.

4. Impact upon the Estate and the Concrete Road

The Concrete Road is the crucial vehicular access to many of the component parts of the Estate – including the visitor entrance to the Gardens, Gift Shop, nursery and several residential properties. During flood events this access becomes even more important as the EA closes the other access into the Estate from Ensfield Road.

There is a risk that the Concrete Road will be flooded during the 1 in 100 year plus climate change scenario by up to 100mm. The Concrete Road itself is already raised from the surrounding land. WSP consider there is a risk that water levels on the land immediately adjacent to the Concrete Road would increase by up to 600mm due to the relative difference in ground levels. The EA/Defra guidance on Flooding and Risk (FD2320/TR2) categorises flooding of 600mm as being a 'danger for most'.

There is a defined edge and drop between the Concrete Road and these areas which in circumstances where the Concrete Road is under water (and in particular where the edge of the road is under water) creates a considerable safety risk for drivers.

In practice the road may become impassable and large parts of the Estate, including the main visitor access, gift shop, nursery and several residential properties would become inaccessible.

The Application indicates that under the revised Scheme water could be held in the Flood Storage Area for up to 2 days (an increase from current practice).

A situation where access is restricted to these properties for such a length of time would have a profound and unacceptable impact upon the operation of the Estate and for the occupiers of the individual premises.

National Planning Policy Guidance advises that

“Access and egress must be designed to be functional for changing circumstances over the lifetime of the development.....

Access routes should allow occupants to safely access and exit their dwellings in design flood conditions. Vehicular access to allow the emergency services to safely reach the development during design flood conditions will also normally be required.....

Even low levels of flooding can pose a risk to people in situ (because of, for example, the presence of unseen hazards and contaminants in floodwater.....)

Whilst this guidance applies to planning applications the same principles should be applied to the Application.

The Estate considers that the EA has not adequately demonstrated that safe vehicular access can be provided to all parts of the Estate during the operation of the revised Scheme. There is a very real risk that access to large parts of the Estate (including several residential premises and a nursery school) will be impossible for a protracted period of time, resulting in an unacceptable impact upon the Estate and its occupiers and giving rise to a direct safety risk.

5. Proposed mitigation and discussions with the EA

As set out above the Estate is not, in principle, opposed to the EA's desire to improve the flood defences for settlements downstream.

The Estate has sought to engage in dialogue with the EA to seek to understand the impact of the revised Scheme with a view to agreeing works to the Concrete Road in order to properly mitigate the risk set out above.

Again, National Planning Practice Guidance provides that:

"Proposals that are likely to increase the number of people living or working in areas of flood risk require particularly careful consideration, as they could increase the scale of any evacuation required. To mitigate this impact, it is especially important to look at ways in which the development could help to reduce the overall consequences of flooding in the locality, either through its design...or through off-site works that benefit the area more generally".

In summary the Estate's position is that in order to properly mitigate the risks of the revised Scheme on the Estate and provide surety of access, the Concrete Road needs to be raised by a maximum of 0.9m and appropriately widened. We enclose at Appendix C a drawing showing the works which the Estate considers to be necessary to the Concrete Road.

Whilst a scheme of works to the Concrete Road has been discussed between the Estate and the EA, the EA's position immediately prior to the submission of the Application was that such works were not necessary.

The discussions between the parties were suspended due to the COVID-19 lockdown. The Estate was surprised and disappointed that the EA subsequently submitted the application without further notification to the Estate in circumstances where the discussions had not been concluded.

In the Application itself at Paragraph 21, the EA state:

"the Environment Agency acknowledges that there may be scope to improve access arrangements during a flood irrespective of the source of the flooding. They are working with the landowners to assess options to modify the private road (the Concrete Road) to the residential and commercial households at Well Place Farm and Killick's Bank. These cannot be accessed from the alternative route off Ensfield Road when the FSA is in operation."

In this paragraph the EA appears to be acknowledging the need for works to the Concrete Road to be undertaken but no precise scheme of mitigation has been confirmed within the Application documentation.

The Estate hopes to work with the EA to agree a mutually acceptable scheme of works to adequately mitigate the risk of the revised Scheme.

Unless such a scheme of mitigation can be agreed and secured, the Estate will maintain its objection to the Application.

6. Conclusion

The Application does not properly assess the impact of the revised Scheme on the component parts of the Penshurst Place Estate.

In particular, the EA has not assessed a 1 in 100 year plus climate change event. Such evidence as was provided prior to submission of the Application demonstrates that, contrary to the assertions within the Application itself, the operation of the revised Scheme will result in an increase in flooding at the Estate and in particular over the key access provided by the Concrete Road.

In the event that the Concrete Road is flooded, visitor access to the House and Gardens, the gift shop, café, nursery and several residential properties will be restricted and give rise to a clear safety risk.

The Estate cannot support an Application which does not recognise such a fundamental risk to the component parts of its operation and its tenants.

The Estate hopes that the EA will engage in proper and meaningful discussions with a view to agreeing a mutually acceptable scheme of mitigation works to the Concrete Road.

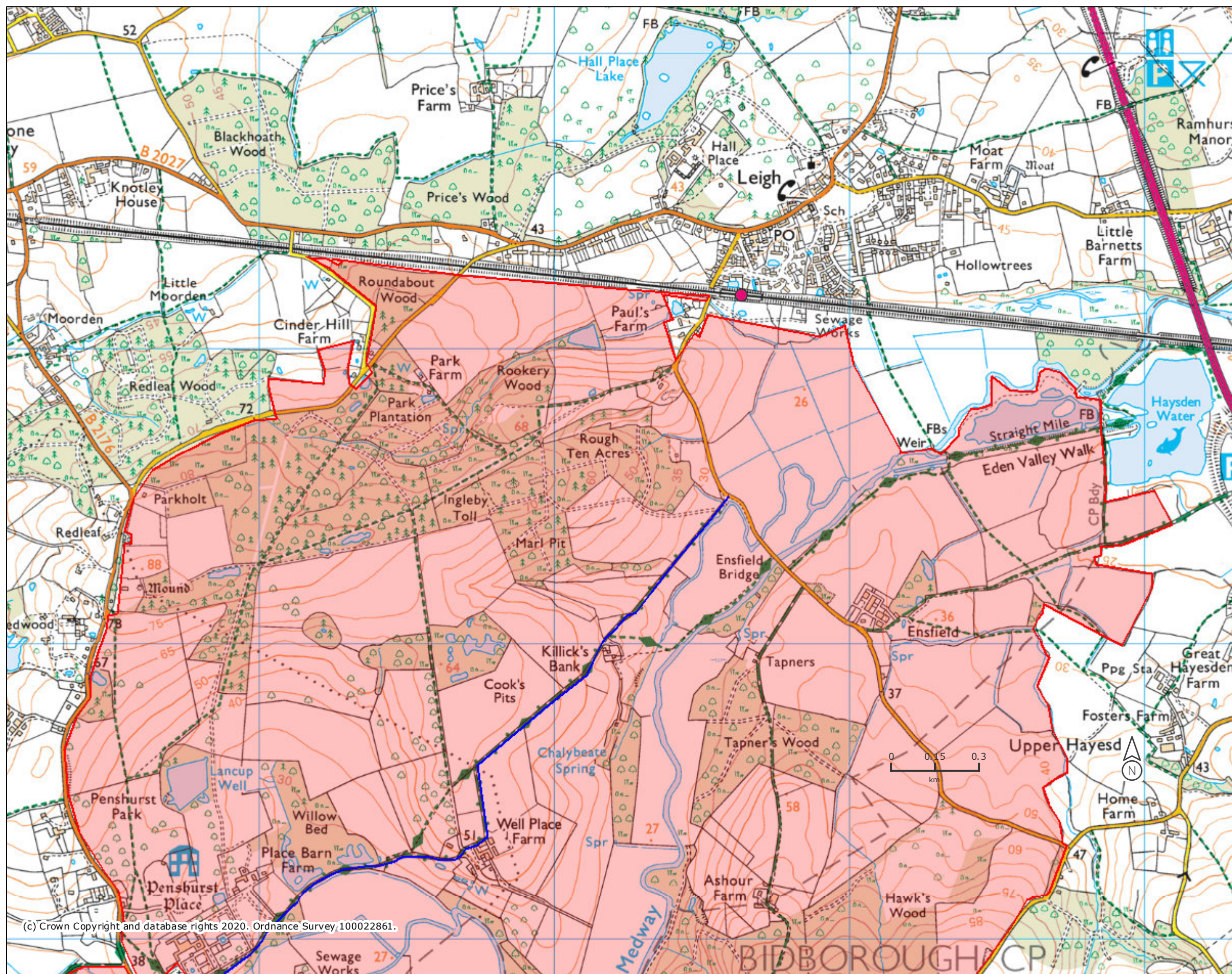
However, for the purpose of Section 17 (3) (f) of the 1976 Act, unless and until such a scheme has been agreed and legally secured, it will maintain its objection – including at a public inquiry if necessary.

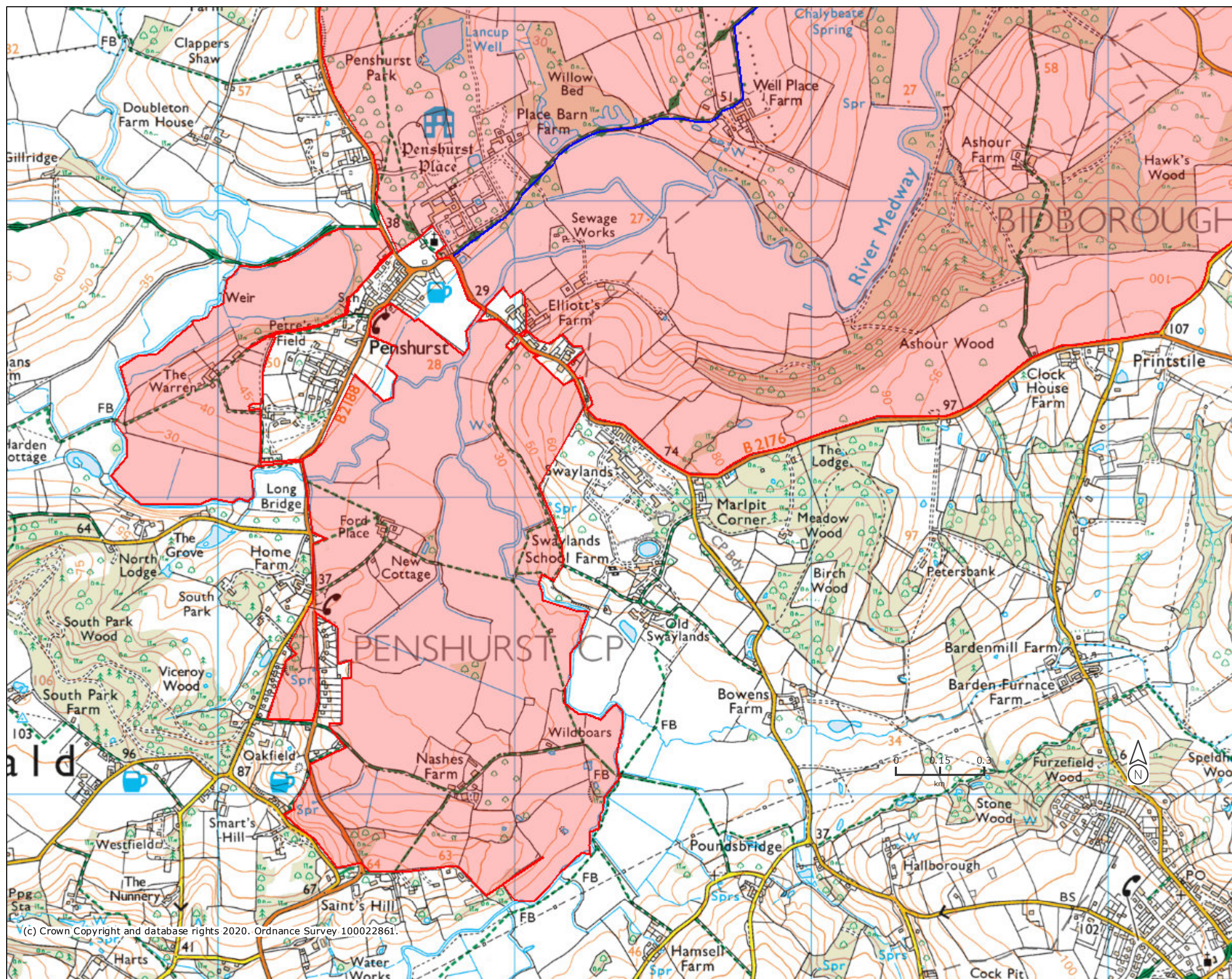
The Estate very much hopes that this will be unnecessary, but this is entirely dependent upon the EA's willingness to acknowledge and address the clear risk to the operation of the Estate.

Yours Faithfully

A handwritten signature in dark ink, appearing to read 'Richard Max & Co', is positioned above the printed name.

RICHARD MAX & CO





Projection = OSGB36

xmin = 550900

ymin = 141700

xmax = 555900

ymax = 144300

Map produced by MAGIC on 7 July, 2020.

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APPENDIX B

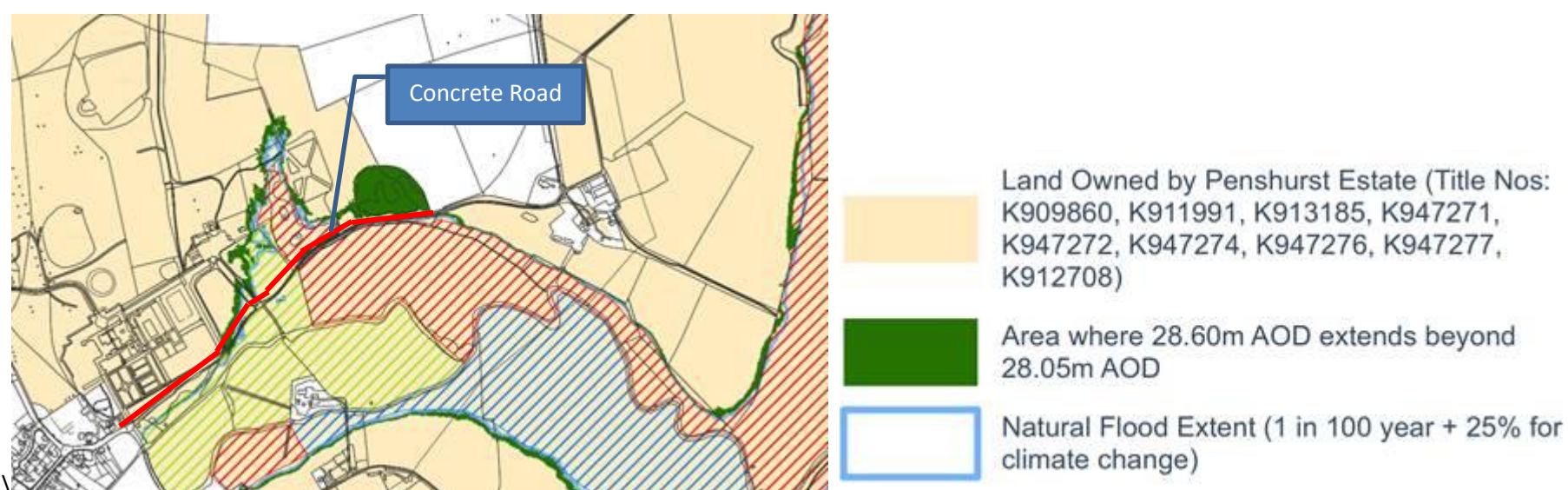


Figure 1: Extract from JBA analysis as presented on the Dalcour Maclaren drawing (173054_PLN_INFO_37.1_B) Revision B, issued 27/11/19

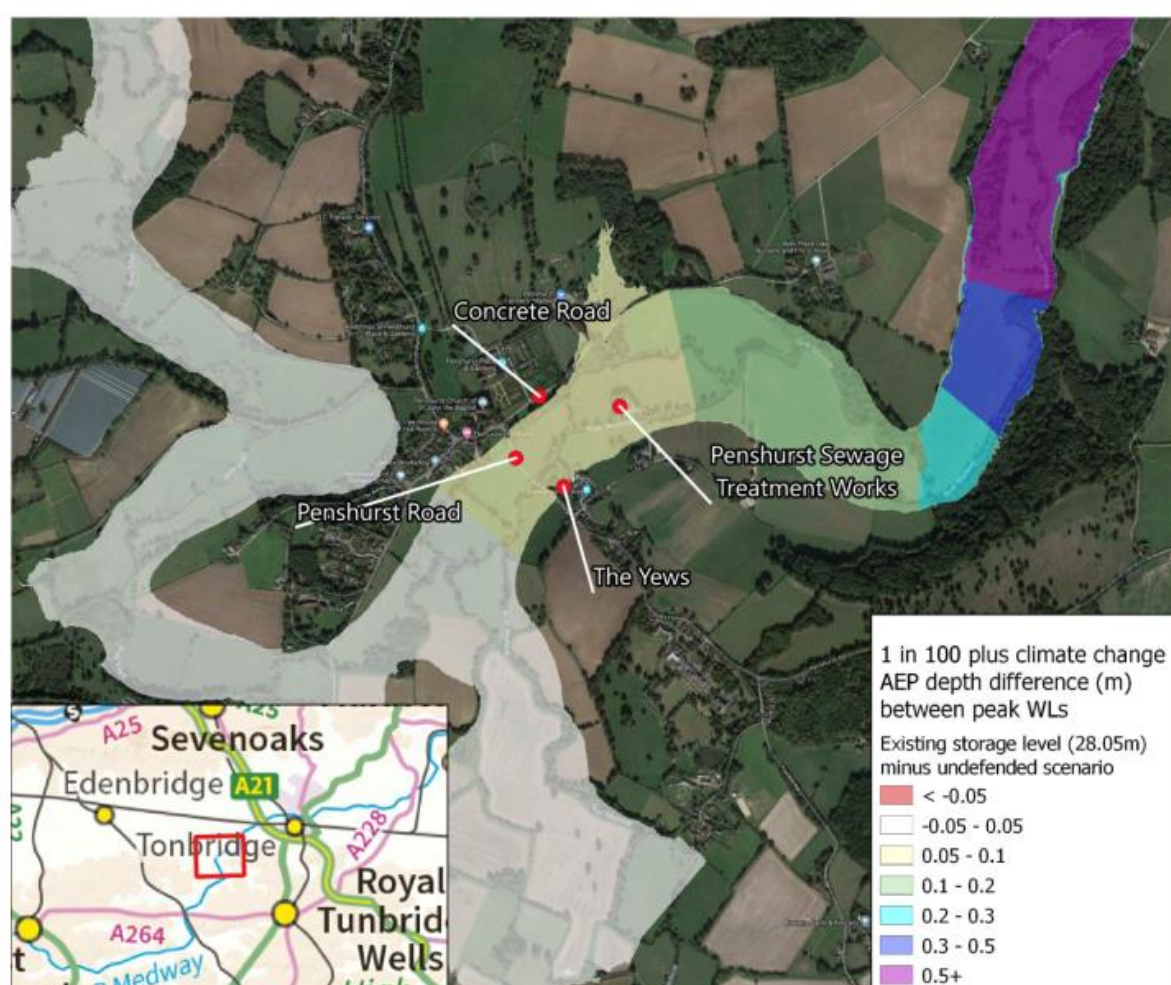


Figure 2: VBA "Depth difference map - existing impoundment situation (28.05m AOD) minus the undefended scenario, for the 1% (1 in 100) plus climate change AEP event"

River Medway (Flood Relief) Act 1976

The Environment Agency's application to vary the Scheme for the operation of the Leigh Flood Storage Area

This is an Objection to the application

From Janie & Mike Hill

House
Rogues Hill
Penshurst
Kent
TN11 8BQ



Photograph of February 2020 after the flood collapsed the road stranding a mobile crane.

The flooding of this road occurred after the Environment Agency operated the Leigh Barrier impounding the existing Flood Storage Area.

July 2020

1. Introduction

House is at the bottom of Rogues Hill close to the River Medway in Penshurst.

We have lived at House since 1993. We have seen for ourselves, over 27 years, the flood levels at Penshurst produced by the operation of the Leigh Barrier.

2. Fundamental reasons for Objection

2.1 We strongly object to this application to vary the Scheme for the operation of the Leigh Flood Storage Area. The EA has consistently failed to properly understand the effect that the operation of the FSA has on Penshurst. Because of this lack of understanding it has developed a theoretical model of flood events that is fundamentally flawed. This has a knock on effect through the whole project.

2.2 Despite having had at least ten years to measure the actual flood levels at Penshurst, the EA has taken an entrenched position on its theoretical modelling and simply denies that raising the level of the FSA will have an adverse effect on Penshurst. This is not based on actual evidence.

2.3 The River Eden joins the River Medway a few hundred metres upstream of Rogues Hill, and measurement of actual flood levels should have been taken after this confluence of two major Kent rivers, to understand the effect that the operation of the FSA causes during times of flooding. Instead the EA relies on measuring actual flood levels at Colliers Land Bridge for the River Medway and Vexour Bridge for the River Eden and then estimating the effect after the confluence. This is a fundamental flaw. Modelling is only ever as good as the inputs into it, if the inputs are flawed, the outputs will also be flawed.

2.4 The EA have never measured actual flood levels after the confluence of the two rivers.

2.5 Page 7 states *"There are no households within the additional area to be flooded."* This is simply untrue. House is within the existing FSA so must be within the enlarged FSA.

2.6 House has flooded 5 times since 2000. On every occasion, that flooding has been after the EA has commenced impounding of the FSA. Kevin and Jenny Storey, the owners, have submitted evidence of these five floods to the EA that shows the flooding took place after the EA started impounding of the FSA. In 2019 the EA accepted liability and paid them compensation for damage caused by the 2013 flood, yet they still maintain that Penshurst will not be affected by this application to raise the level of the FSA. It simply does not make sense.

2.7 The Technical Note (Appendix A) produced by the EA, shows for a 1 in 100 plus Climate Change scenario, a forecast flood level at House of 30.4 metres AOD. This is high enough to affect more houses on Rogues Hill than just House.

3. Flawed Process

3.1 Natural Flooding

We refute the EA's assumption that "Natural Flooding" occurs rather than being the effect of impounding the FSA. In our experience as residents, this is simply not true. Evidence has been provided to the EA that all floods from 2000 to 2020 at House and the Village have occurred **after** the impounding of the FSA takes place. This flooding is greater than, and lasts for a longer duration than, any natural flooding.

3.2 Inconsistent standards

In the EA's Strategic Flood Policy it states that 1 in 100 years plus Climate Change is the scenario that should be defended against.

Throughout this project the EA have always quoted 1 in 100 years plus Climate Change as the scenario used.

In the application the EA have changed to a 1 in 75 years scenario. This conflicts with their own National Guidance.

3.3 Failure to gather evidence of actual flood levels

The EA have failed to measure the actual flood levels in Penshurst. Instead they have relied on theoretical modelling, which simply does not stand scrutiny when compared to the actual flood levels during impoundment of the FSA. The EA first raised the proposal to increase the FSA in 2010. Had they measured the flood levels then they would have actual data for the floods of 2013, 2019 & 2020. They failed to do this, instead they have relied on calculated flood levels and theoretical modelling. The EA have been sent the actual flood levels at House but they have chosen to disregard these. This is unacceptable.

3.4 Misleading statements

On Page 12 the EA state that they use "Better and more reliable gauging technology which provides more accurate information about actual river levels." Whilst this may be true, it is certainly not true in Penshurst. They have no gauging at all between the Leigh Barrier itself and Colliers Land Bridge for the River Medway and Vexour Bridge for the River Eden, a distance of 8km and 5 km respectively. And there is no gauging at all after the confluence of these two rivers.

3.5 Flow Rates

The current Scheme allows the FSA to be used when the rate of flow in the River Medway exceeds 35 cubic metres per second. Since 2011 the EA have only used the FSA when the flow exceeds 75 cubic metres per second, as to "go too early" would leave them with no spare capacity. Yet they ask to retain the lower figure. This places a great risk on Penshurst. With an increased capacity they could start impounding of the FSA too early and this would increase flood levels at Penshurst.

3.6 Biased letters of support

In the application the EA has submitted letters of support from many bodies. Not one person or organisation representing upstream communities have been invited to submit letters giving opposing views. For a Public Body this is unacceptable bias.

3.7 Failure to meet statutory obligation 1

The Environment Agency (EA) have not met the requirements of Section 17, Part II (e) of the River Medway (Flood Relief) Act 1976. The Act requires the EA to supply a copy of the revised scheme to "The Specified Interests" **BEFORE** submitting the scheme to the Minister for approval. The EA failed to do this. The scheme was submitted on the 10th June, but some Penshurst residents did not receive their copy until after this, denying us all the opportunity to (a) discuss the revised scheme with the EA and (b) to come to an agreement with them.

3.8 Failure to meet statutory obligation 2

The Environment Agency (EA) have not met the requirements of Section 17, Part II (e) of the River Medway (Flood Relief) Act 1976. The Act required the EA to supply a **COPY** of the revised scheme to "The Specified Interests." The EA failed to do this. The copy supplied is not the same as that which has been submitted to the Minister. The revised scheme on the reverse of the letter dated 8th June contains 5 paragraphs, whereas the revised scheme submitted contains 4 paragraphs. Again as the scheme had already been submitted, we were denied an opportunity to discuss the revised scheme with the EA.

3.9 Communication Failure

There has been no meaningful discussion with residents nor the Parish Council. What communication there has been, has simply been the EA telling us that their Theoretical Model shows that they are not responsible.

The EA have failed to monitor, assess safety and accessibility within the Village and to identify solutions.

3.10 Disregard for local MP

Tom Tugendhat MP has been supportive of our village's position within this proposal. He recognises the benefit to the homes downstream that will benefit from this proposal, but he also recognises the problems caused upstream in Penshurst. He has consistently raised this downside with the EA but has always been told that they were consulting with Penshurst. This has not been the case.

3.11 Risk of Judicial Review

All of the above flaws in the process mean that any decision made on the EA's Application could be challenged by means of a Judicial Review. The residents of Penshurst have twice raised funds to pay a QC to challenge two national decisions via Judicial Review, one planning decision and one aviation decision. Both decisions were quashed due to failure in process.

4. Penshurst Village

4.1 Risk of Death

Rogues Hill is a major route into and through the Village. It is the route used by the Fire Brigade, Police and Ambulance Service responding to emergency calls. It is also used by school buses and village traffic. When the EA impound the FSA this road floods to a depth of up to 1 metre, making it impassable, yet vehicles still attempt to pass. Raising the level of the FSA can only increase this flooding. This would create a **Moral Hazard**, with the

potential for death. The water flow is known to be in excess of 70 cubic metres per second and should a school bus attempt to go through the flood, it could easily be carried away downstream. This risk of multiple death is high. The EA have merely said that it is the responsibility of the Highways Agency. The **Grenfell disaster** has taught us that Moral Hazards can prove fatal, years later for many innocent members of the public.

4.2 Disregard for Penshurst Estate Residents

When the Leigh FSA was built in 1982 the EA's predecessor identified the risk of access to properties on the Penshurst Estate, and paid for the construction of a concrete road to ensure safe access. The EA's proposal to raise the height of the FSA now places access via that same concrete road at risk. On Page 21 the EA deny this problem, but say there may be scope to help. This is typical of the condescending attitude throughout both communications and the application. They have failed to provide a solution to a problem of their creation. A problem that affects not just six residential properties and farm buildings but also a nursery school with many children in its care.

4.3 Disregard for High Street Properties

Flooding will affect properties on High Street. There are buildings used for warehousing, hobbies and garages to the rear of these properties. Increased flooding will cause damage to property and access problems. One of these properties also claimed compensation for flooding caused by the EA's impounding of the FSA in December 2013. Early in 2020 the EA admitted liability and paid compensation to the owner of the property.

Appendix A

Project:	Leigh Expansion and Hildenborough Embankments Scheme		
Subject:	Penshurst modelled flood risk	Consultant:	VBA
Date:	June 2018	Version:	2

1. Purpose

This technical note outlines the modelled risk of flooding at and near to House, Rogues Hill, Penshurst under three Leigh Flood Storage Area (FSA) operational scenarios. This has been produced as part of the Leigh Expansion and Hildenborough Embankment Scheme (LEHES) which is currently being progressed by the Environment Agency and partner organisations.

2. Modelled events

Under the existing situation, the Environment Agency impound flood water in the Leigh storage area to a maximum level of 28.05m Above Ordnance Datum (AOD), measured at the main embankment near to the mechanical gates. The current study is investigating whether this storage level could be increased to 29m AOD to increase storage within the flood storage area. The upstream impact of both of these storage levels has been simulated in the hydraulic model.

The hydraulic model has also been used to understand the risk of flooding if there was no storage area. This is referred to as the undefended scenario. The Environment Agency do not intend to promote this option, but it provides an understanding of the 'natural' risk of flooding with no impoundment.

Six design flood events have been simulated for the two Leigh FSA storage levels, with two design flood events simulated for the undefended scenario. These cover a range of event probabilities. Maximum flood levels have then been extracted from each of the model results. These water levels have been analysed to assess the risk of flooding to House.

3. Ground and threshold levels

Approximate ground levels have been identified using Light Imaging, Detection and Ranging (LIDAR) data at the following key locations (Figure 1):

- Lowest point on Penshurst Road: 28.9m AOD
- Average ground level on floodplain upstream of Penshurst Road: 27.6m AOD

Threshold levels have been taken from survey data:

- Front threshold of House: 29.5m AOD
- Rear threshold of House: 29.1m AOD
- Outhouse building at House: 28.7m AOD



Figure 1. Locations of key ground and threshold elevations against which modelled flood levels are compared

4. Modelled flood risk

Impact of Penshurst Road

Penshurst Road is raised above the surrounding land, creating a causeway which restricts the natural flow of water across the floodplain. In lower order events, up to and including the 20% (1 in 5) annual probability flood, the modelled water level upstream of the road rises to approximately the same as the minimum road level (28.9m AOD) but does not exceed it. The restriction on floodplain flow caused by the road results in flood levels which are higher upstream of the road compared with those on the downstream side, increasing flood risk at

House. Although in larger events, water is modelled to overtop the road, the effects of the restriction on flow are still observed. It is this flow restriction which causes the differences in water levels upstream and downstream of the road illustrated in Tables 1 to 3 below.

Undefended scenario

Undefended modelled water levels are given in Table 1. These indicate that part of House would be at risk of internal flooding in the 5% (1 in 20) Annual Probability (AP) event

with no impoundment at Leigh. The front threshold of the property is exceeded for a 1% annual probability event with climate change but not in a 5% annual probability event.

Table 1. Undefended modelled water levels

Flood Event annual probability	Water levels near Bridge House (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
5% (1 in 20)	29.4	28.7
1% (1 in 100 + CC)	30.3	29.4

Existing Leigh Operation

Modelled water levels from the existing situation (storage at Leigh to 28.05m AOD) are given in Table 2. In the two events for which undefended water levels have been modelled (5%, and 1% with climate change annual probabilities), the water level near Bridge House is approximately 0.1m higher as a result of the impoundment at Leigh than for the Undefended model water level. This increase means that in the 5% (1 in 20) Annual Probability (AP) event, water levels are about equal to the front threshold of the property.

Table 2. Existing situation (storage at Leigh to 28.05m AOD) modelled water levels

Flood Event annual probability	Water levels near Bridge House (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
20% (1 in 5)	28.9	28.4
5% (1 in 20)	29.5	28.8
2% (1 in 50)	29.9	29.1
1.3% (1 in 75)	30.0	29.3
1% (1 in 100 +CC)	30.4	29.5
0.4% (1 in 250)	30.4	29.6

Proposed Increase Storage Option

Modelled water levels caused by raising the maximum flood storage at Leigh from to 29m AOD are given in Table 3. This illustrates that the change in maximum water level at Leigh has no impact on flood levels upstream at Penshurst.

Table 3. Proposed options (storage at Leigh increased to 29m AOD) modelled water levels

Flood Event annual probability	Water levels near Bridge House (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
20% (1 in 5)	28.9	28.4
5% (1 in 20)	29.5	28.8
2% (1 in 50)	29.9	29.1
1.3% (1 in 75)	30.0	29.3
1% (1 in 100 +CC)	30.4	29.5
0.4% (1 in 250)	30.4	29.7

**Cottage
High Street
Penshurst
Kent
TN11 8BT**

**Objection to The Environment Agency's application to vary the Scheme
for the operation of the Leigh Flood Storage Area**

Gillian Pallen & Timothy Burraston



Photograph from December 2013 when our studio and gym buildings were flooded.

Taken after the Environment Agency operated the Leigh Barrier impounding the existing Flood Storage Area to its maximum depth of 28.05 metres AOD.

July 8th, 2020

1. Introduction

We moved into Cottage early in 2013.

In order to provide a suitable environment for home working, music production and exercise, in the summer of 2013, we converted two adjoining outbuildings in our garden to be fit for these purposes. In addition, we erected a small garden shed to provide storage for a lawn mower and gardening tools. All of these structures lie outside the area marked in blue on our deeds which the EA is not entitled to use for floodwater storage.

In December 2013, following operation of the Leigh Barrier both the adjoined studio/gym and the small shed were flooded.

In December 2019 we submitted a claim for compensation for which the EA admitted liability and settled.

2. Reasons for Objection

Whilst we fully understand the need for enhancements to the Leigh FSA we strongly object to this application. Our primary reasons for this are as follows:

- 2.1. It would appear that the EA is relying solely on computer modelling to predict the impact of changes to the flood storage area. We do not accept that this can provide an accurate picture of the effect on Penshurst given the vast number of variables present during an actual flood event.
- 2.2. Despite past flood events, no monitoring has been put in place to understand the actual effect of operating the flood barrier on flood levels in Penshurst, below the confluence of the rivers Medway and Eden area. The EA relies on measurements from upstream at Colliers Land Bridge for the River Medway and Vexour Bridge for the River Eden. These measurements are not a substitute for proper local monitoring.
- 2.3. The EA's application concludes that the proposed changes to the height of the flood barrier will have **no impact** on Penshurst in terms of depth or duration of flooding. Given the lack of empirical data we do not accept this assertion.
- 2.4. In our experience as residents, flooding is most definitely exacerbated by the operation of the Leigh barrier. An increase in the height of the barrier must represent an increased risk to our outbuildings and to Penshurst in general.
- 2.5. In the EA's Strategic Flood Policy it states that 1 in 100 years plus climate change is the scenario that should be defended against. Throughout this project the EA have always quoted 1 in 100 years plus climate change as the scenario used. In the application the EA have quoted a 1 in 75 years scenario. This conflicts with their own National Guidance.

- 2.6. The application states that since 2011 the EA have only used the FSA when the flow in the River Medway exceeds 75 cubic metres per second. The current Scheme allows the FSA to be used when the rate of flow exceeds 35 cubic metres per second and this figure has been explicitly retained in the revised Scheme. This represents a significant risk to Penshurst in the event the EA reverted to using the lower flow rate in combination with an increase to the height of the Leigh barrier.
- 2.7. Throughout the consultation period, communications have been very erratic and inconsistent. We do not believe that we have been party to all available information throughout the process. For example, we did not receive the results of GPS altitude measurements conducted on our property in the Summer of 2019 until June this year.
- 2.8. Despite the consultation process, we have not been given any insight into the EA's intentions with respect to any actions that could be taken to mitigate future damage to our property.
- 2.9. The application contains various letters of support. However, no-one from any of the affected upstream communities has been asked to comment. This is biased and unacceptable.
- 2.10. The EA have not met the requirements of Section 17, Part II (e) of the River Medway (Flood Relief) Act 1976. The Act requires the EA to supply a copy of the revised scheme to "The Specified Interests" **BEFORE** submitting the scheme to the Minister for approval. The EA failed to do this. The scheme was submitted on the 10th June, but we did not receive the copy until after this, denying us the opportunity to (a) discuss the revised scheme with the EA and (b) to come to an agreement with them. Furthermore, the copy supplied is not the same as that which has been submitted to the Minister. The revised scheme on the reverse of the letter dated 8th June contains 5 paragraphs, whereas the revised scheme submitted contains 4 paragraphs. Again, as the scheme had already been submitted, we were denied an opportunity to (a) discuss the revised scheme with the EA and (b) to come to an agreement with them.

3. Summary

We believe the EA have not acted in good faith in terms of addressing the additional risk posed to our property by this application and they have not taken on board the legitimate concerns and interests of the residents of Penshurst.

The process they have followed has clearly been flawed in several areas versus the requirements of the River Medway (Flood Relief) Act 1976.

There is an unacceptable level of reliance on computer modelling versus real world evidence and measurement.

During the consultation period there were occasional indications that the EA might be considering mitigating action to prevent the cyclic recurrence of damage to and compensation for our property but nothing material has come of this.

The solution to our flooding problems would be to simply raise our adjoined main outbuilding (studio + gym) by approximately 1 metre.

We would have been prepared to negotiate a revised easement in exchange for funding to enable this work to be carried out and given the requisite planning permission by Sevenoaks District Council, rather than face the misery and disruption caused by flooding due to future operation of the Leigh barrier.

4. Penshurst Village

4.1. Risk of Death

Rogues Hill is a major route into and through the Village. It is the route used by the Fire Brigade, Police and Ambulance Service responding to emergency calls. It is also used by school buses and village traffic. When the EA impound the FSA this road floods to a depth of up to 1 metre, making it impassable, yet vehicles still attempt to pass. Raising the level of the FSA can only increase this flooding. This would create a **Moral Hazard**, with the potential for death. The water flow is known to be in excess of 70 cubic metres per second and should a school bus attempt to go through the flood, it could easily be carried away downstream. This risk of multiple death is high. The EA have merely said that it is the responsibility of the Highways Agency. The **Grenfell disaster** has taught us that Moral Hazards can prove fatal years later for many innocent members of the public.

4.2. Disregard for Penshurst Estate Residents

When the Leigh FSA was built in 1982 the EA's predecessor identified the risk of access to properties on the Penshurst Estate, and paid for the construction of a concrete road to ensure safe access. The EA's proposal to raise the height of the FSA now places access via that same concrete road at risk. On Page 21 the EA deny this problem, but say there may be scope to help. This is typical of the condescending attitude throughout both communications and the application. They have failed to provide a solution to a problem of their creation. A problem that affects not just six residential properties and farm buildings but also a nursery school with many children in its care.

4.3. Disregard for High Street Properties

Flooding will affect properties on High Street. There are buildings used for warehousing, hobbies and garages to the rear of these properties. Increased flooding will cause damage to property and access problems.

Appendix: Garden to the rear of Colquhouns Cottage

Layout of Garden Outbuildings

There are two outbuildings that were affected by the floodwaters:

1) Building A

During 2013 this building was converted from a utility shed to form two separate studios:

- a. Combined office and music studio with electricity, flooring, heating and insulation.
This office forms the larger part of building A and is at a higher level (~30cm) than the lower part.
- b. Fitness studio and storage area with electricity, flooring, heating and insulation.

2) Building B

A shed erected during 2013 for storage of lawn mower, strimmer and other gardening tools plus general storage.



The following pictures show the extent of the flood damage with respect to the above structures:

Building A



On the right is the main office / studio. To the left is the lower fitness / storage area:



Flooding in the main office area:





Floodwater in the lower fitness / storage area:





High Street
Penshurst
TN11 8BT

Sent by Email to: floodscasework@defra.gov.uk

Dear Sir/Madam

Re: River Medway (Flood Relief) Act 1976

The Environment Agency's application to vary the Scheme for the operation of the Leigh Flood Storage Area

Objection to the application

As residents living in the village of Penshurst we object to this scheme. Please read our comments below outlining why.

Whilst it is recognised that there is a need for adjustment to the flood storage area in order to protect properties downstream we are very concerned that not enough consideration or communication has taken place with communities upstream. Most importantly, no monitoring has taken place, the safety aspects, accessibility of the village or potential effect on the community and property in Penshurst have not been properly assessed and no solutions have been proposed. Highways have not been consulted and the application is made based entirely on theoretical reports rather than real life evidence with no attempt made to verify the theory which has itself changed over time.

We challenge the EA's assumptions on 'natural flooding'. We do not believe their parameters and assumptions.- In our experience as residents of the village, flooding is greater and lasts for longer when the barrier is shut, so to claim the barrier doesn't affect the village or our property is simply incorrect.

- We do not understand why no local monitoring has taken place? There has been ample opportunity to monitor and create real reporting on the flood levels in the village, yet it has not been done. Penshurst is the point at which the rivers Eden and Medway meet, it is incredible that this has not been done. No accountability for the excess flooding we see in the village when the barrier is used has been taken, the Environmental Agency have wholly relied on theoretical reporting that does not tally with reality.
- The Highways agency haven't been consulted despite the fact that damage and therefore adjustment to the road will be inevitable in order to maintain the safety of residents and provide access to the village. This is especially important in regards to the road between the bridges at Rogues Hill which poses a 'Moral Hazard' when flooded as it is impassable, this road flooded recently within an hour of the barrier being closed. This is a main route for school buses and ambulances. Both bridges/roads at either end of the village flood, it is very dangerous to attempt driving through them as demonstrated earlier this year with an overturned lorry.
- We know that with the proposed rise flooding will be higher and will last longer, what are the Environment Agency planning to do to mitigate the damage this will cause?
- House has flooded on 3 occasions when the barrier was in play- Dec 13, Dec 19 and Feb 20.
- There is real concern that the proposed increase will flood the concrete road at Penshurst Place potentially completely cutting off 6 residential properties, farm buildings and worryingly Well Place Nursery School.

- Communication from the EA has been sporadic and inconsistent.

For example in the proposed scheme the environmental agency states that this scheme has a design life of 40 years, however they go on to say the flooding is 1/75 yrs, why the differential? Then on the recent planning for House they state flooding as a 1/100 year occurrence +climate change at 25% and that the new extension should be built with a 600mm freeboard, this is inconsistent. In reality though, serious flooding in the village and to House seems to be been more frequent than this with 3 significant floods in the last 10 years alone.

The model used we understand concentrates on information gathered from immediately behind the barrier not at Penshurst, it has also used flow rates from the 2017 flooding rather than from the peak flooding that was seen in 2013/14.

The modelling is based on a level of 28.395m whilst the proposal is at 28.6m – why? On P21 it is stated that the flood levels will ‘not’ increase near Penshurst Place as a result of the proposed scheme and then they say on P23 that the flood levels in Penshurst will rise by 0.1m, then the map on P24 shows no increase!

- We are also very concerned to note that in the proposed scheme the flood storage area can be used when the flow rate reaches 35 cubic meters per second when currently the barrier is only impounded when the flow rate is at 70 cubic m/sec. Why is this? If this is to be put in to practice from 35 c.m/s + it will certainly have a detrimental effect to the communities up stream in terms of unnecessary excess water building up. This should be changed to 70c/m/s to reflect what is done in practice.
- We understand that at Pauls Hill the EA have just added that a new embankment is needed to prevent water finding its way around - by only just adding this they demonstrate lack of thoroughness and quite how un-joined up their approach is.
- There is the potential loss of access to Penshurst Place and Gardens affecting local businesses in the village and surrounding areas. Penshurst is in the greenbelt, in an AONB, a large proportion of the properties and their outbuildings are listed, it is a heritage site that should always be protected, on this basis monitoring should have taken place in the village.
- With the current proposed scheme, flooding will be deeper and take longer to clear, this is going to adversely affect our property, vehicular access to the rear of our property could easily be cut off, our proposed garage, contents and garden flooded and damaged to a far greater degree. It is unacceptable that this has not been considered an issue of any concern to the EA.
- To further manipulate the result of the application the EA appear to have cherry picked letters of support from parties who will not have researched, fully understood or have had any reason to question their reporting, so on this basis will not have given any thought to the upstream communities.

Yours faithfully

Rupert & Alix Calvocoressi

River Medway (Flood Relief) Act 1976

The Environment Agency's Application to vary the Scheme for the operation of the Leigh Flood Storage Area

Objection to the application

**FROM Jeremy & Katharina
Thompson**

**Rogues Hill,
Penshurst,
Kent
TN11 8BQ**



Photograph, December 2013: The garden, greenhouse & shed at The Yews were flooded. The Leigh storage area impounding the existing area to its maximum depth at 28.05 metres of AOD.

1.INTRODUCTION

The Yews is positioned at the bottom of Rogues Hill with the garden extending down to the river Medway some 20m from the house. The flood storage area (FSA) occupies a small part of our garden (as defined in the 1976 act). The house is Grade II listed, sits in an Area of Outstanding Natural Beauty and is in a Conservation Area.

We have lived at The Yews for over 25 years. In this time, we have kept a watchful eye on the evolving plans from the Environment agency (EA) to expand the flood barrier. I have attended meetings from before 2010 when I believe a proposal was originally announced to raise the height of the water level stored in the FSA.

Subsequently to that date, particularly from 2015 onwards, I have met with the EA and their representatives. At every meeting, I have made clear my concerns over the impact of their inappropriate modelling and misguided approach to this project expansion. The project team at EA gives little or no consideration to the significant impact on the village of Penshurst overall or the property and land owners specifically affected.

2. Reasons for objections

2.1

We remain very concerned about the application to amend the scheme for the operation of the FSA. We fundamentally believe that the EA has not sort to fully understand the impact of the FSA and any changes to the barrier on the village of Penshurst and on our property.

2.2

At meetings we have had with the EA, I have stressed the need for more accurate measurements of the topographical land levels and resultant water ingress. As a result, they did produce much more accurate land measurements in July 2018, which showed the likely water ingress to my property quite clearly. See appendix H in the application, showing the dark blue natural flood outline. This line appears to have expanded beyond the “limit of land to be acquired” as a result of the 1976 Act, visible in appendix J of the November 1975 River Medway Flood Relief Plan. It is also worth noting in the map, demonstrating an enlarged section of my property. Appendix H excludes the Eastern extent of my property which is where the lowest land levels are and the areas which are most likely to flood.

2.3

At meetings with the EA and their representatives, I have raised concerns that they do not understand the flows of water at Penshurst when the flood barrier is in operation. I believe this is fundamental in determining the impact of flooding on Penshurst and its residents. Indeed on at least two occasions, employees of the EA have told me they have never visited Penshurst when the barrier is raised. They said their focus was on the operation of the barrier and the flooding downstream, not on Penshurst. This flawed position together with

inadequate consultation and communication with all the connected parties cannot be consistent with finding an appropriate even-handed outcome for this planned expansion. In any situation like this, a majority of land and property owners are set to gain but a minority inevitably lose out. A concerted effort needs to go in to control the negative impact and compensate property and landowners for it appropriately.

3. Issues For Penshurst

3.1

The valley in which Penshurst sits is a natural flood plain with a pinch point between the village church to the North and House and The Yews to the South. In between are two bridges and about 80 metres of road which is raised as a causeway in an attempt to allow traffic to pass despite flooding.

This is a critical area for the whole village as it is the main road B2176 to Tonbridge and Tunbridge Wells to the South and Hildenborough and Sevenoaks to the North. Its closure causes huge disruption to the area, unlike Ensfield Road to the Northwest which is broader, quieter and designed to close with enough turning space.

At Penshurst Place, the concrete road going East from the entrance arch to Ensfield Road floods quickly after the barrier is raised, causing difficult access to their car park, facilities and is the only route to the Nursery School at Wells Farm. That road was built and raised to avoid this issue and is clearly failing in its purpose when the barrier is at its current highest position.

In addition, for us at The Yews and House the effect is just as quick as water comes up through the ground level effect in the fields by the causeway before the Eden and Medway have broken their banks. When this happens, the causeway is quickly underwater and as seen in 1999/2000, 2013/2014 and 2019/2020, soon after the road is impassable to all traffic.

Descending Rogues Hill is very tight with very limited visibility. You reach the bridge very quickly where there is no turning space. From the opposite direction coming through the village you turn sharply right and are immediately at the other bridge again with very little turning space. Unsurprisingly, when the flood water is running high, the causeway becomes a dangerous traffic nightmare.

Southern Water back in 1976 partially recognised these issues by paying compensation, including modest amounts to the residents on the South Side of Penshurst High Street. The EA appears to have rewritten history and geography here by ignoring the whole issue.

3.2

I have said at many meetings with the EA over the last 5 years that they need to do a very detailed traffic survey of the village, both under normal conditions and when the flood barrier is fully utilised. Back in 1976, Penshurst was a sleepy village but now that is far from the case. The B2176 is a very well used local road, including traffic from all emergency services. There are several timetabled bus routes through the village plus many school pick up/drop off buses. Commuters are very active at the beginning and end of the day with many main line stations and business parks within reach. Not to mention the vast increase in `white van traffic` for both work and delivery services plus heavy farm and building traffic. It is obvious that a detailed study is needed by Sevenoaks Council Highways Agency to fully understand the traffic implications of any expansion to the FSA. To the best of my knowledge, nothing of this kind has happened to date. In fact, it would appear that Sevenoaks council has naively believed the EA's view that the changes will have no impact on their constituents at Penshurst.

When the road through Penshurst is closed, chaos ensues as detouring West via Fordcombe is very tight and can easily take an extra 15 minutes. Going East via Tonbridge is much longer and with heavy traffic and flood detours can easily take 30 minutes. As the EA tell us "Because of climate change" and the increased level of the barrier proposed (28.05m to 28.65m) we must expect to see roads closed for twice as long, for a 8 day period, as the water takes longer to clear. This is an extremely serious level of disruption for the 800 residents of Penshurst and residents of the local area. The EA should be pushed hard to investigate and properly measure this meaningful level of inconvenience for all.

4. Geology

4.1

Geology is another significant local feature that the EA find easier to ignore. The bulk of Eastern Penshurst sits on a natural outcrop of very porous Wealden sandstone. This has been used extensively in building Penshurst Place and many local houses. I would argue, and have done so with the EA, that understanding this is essential in trying to calculate the flows of water during flooding, exacerbated when the barrier is in use.

With this in mind, viewing the valley at Penshurst when it starts to flood would show how quickly water flows through the underground water table. You can clearly see in many fields and our garden water bubbling up through the ground to start the flooding process well before the rivers break their banks.



The garden at The Yews underwater 24/12/2013

4.2

I believe a detailed geological survey is essential and it would quickly prove that some of the EA's modelling assumptions are seriously flawed. It explains why the water flows quickly upstream through Penshurst when the barrier is raised. Indeed the EA's projection at an increase of 0.5 m to the height of the barrier would only result in an increase of 0.1m of water passing through the village is seen as laughable by the residents. It would also appear to run contrary to the assumptions Southern Water made as part of the 1976 Act.

5.RIVER LEVELS

5.1

It is clear that with living very close to the rivers Medway and Eden confluence, understanding the FSA is a regular topic of conversation for myself and other residents, such as Kevin Storey. In the last 25 years, there have been some 5 major flooding issues where the top water levels at the barrier were 27m above sea level or higher. These were December 1999, the last two months of 2000, December 2013 (the highest at over 28m above sea level), December 2019 and February 2020.

5.2

On all occasions, the background was the same, significantly they all occurred at the beginning or end of the year i.e deep mid-winter. The tendency was to be after an extended period of very heavy rainfall. This was coming from persistent frontal weather systems travelling from the Atlantic, moving from the South West in an Easterly direction. Persistent rain filled up the water table to saturation point here in Kent which is normally a county which enjoys much drier weather than most of the United Kingdom.

5.3

The ground is constantly awash and water rushes down to the valleys to the point below Well Farm where the Eden and Medway rivers meet. Thereafter, the water speeds rapidly Eastwards to the sea. The EA's explanation that raising the barrier increases the water in the valley from the bottom may suit their argument but makes no sense. The valley is already saturated so raising the barrier traps more water in the flood plain and therefore increases the height of the water effectively filling it from the top.

5.4

I am sure proper measurement of the flood water will show this higher water level, quickly moving back upstream to Penshurst and beyond. Meanwhile, as well as heavy rain there are usually extreme winds driving the water down the valley to the pinch point at the causeway. One can see this with marked wave patterns moving in an Easterly direction often over 1m in height. I would imagine this is a result of the flood water being driven down the valley meeting with the water backed up by the raised barrier. This is no doubt exaggerated by the valley's variable topography to which the EA refer. Thereby significantly increasing its depth, spread and therefore flooding impact at this crucial Penshurst pinch point.

5.5

To claim that the increased barrier height would make little difference to water levels in Penshurst clearly runs contrary to historic data. I can only imagine this is a result of some very optimistic assumptions buried deep within the model. The predicted work carried out in the mid 1970s would have appeared to have been more realistic only to have been overtaken by significant changes in weather patterns and rainfall levels. I conclude that the modelling carried out must be deeply flawed, not in terms of its approach or mathematics but it assumes wildly optimistic, self-serving assumptions. Similarly, the land level measurements that took place in Penshurst some years ago were very inaccurate. These were corrected by a very detailed survey undertaken by JC White in July 2018. This survey clearly reflects where the water goes and shows that it is quickly beyond the area of land acquired under the "Right to Flood" facility in the 1976 act. Following the same precedent, the flood modelling should all be redone using transparent and more realistic assumptions. This is the only way that the swift and overwhelming flood water effect on Penshurst can be understood. Logically, it is then that appropriate measures and compensation can be given to residents and land-owners who will suffer the consequences with the significant impact on their livelihoods and devaluation of their property.

6.Flooding; Frequency, Depth & Flow Rates

6.1

We believe the flooding in 2013/2014 & 2019/2020 showed a significant expansion of the Natural Flood Outline. The barrier was in full operation during these periods and this clearly demonstrates that the flooding is greater, deeper and lasts longer than any natural flooding.

6.2

Prior to the last year, the EA have constantly referred to the 1 in 100 years plus climate change as the scenario to be defended against. It was also frequently stated that this was the scenario used in their plans. In the current application, the EA have suddenly changed this to a 1 in 75 year scenario.

Why the change? Particularly as it is contrary to the national guidance. With at least 3 major floods in the last decade, the EA have clearly got a much more frequent issue to attend to.

6.3

Many people in Penshurst have requested measuring water depths at the causeway with Kevin and I particularly outspoken on this matter. After 2013/2014 the EA did install a measuring post on the river bank opposite the House. For those of us who monitor water depths the top of this post is about 1.5m below the maximum levels reached in those two flood incidents. The measuring post is wholly inadequate, is this deliberate or incompetence?

6.4

Flow rates are also an issue subject to recent change by the EA. The current scheme allows for the FSA to be used when the rate of flow in the river Medway exceeds 35 cubic metres / second. Since 2011 the EA have only used the FSA when flow rates exceed 75 cubic metres/ second. They say that “going too early” would leave less storage capacity and indeed there is some evidence building that letting water flow through Penshurst more quickly could manage flooding more effectively. However, retaining the right to raise the barrier triggered by the lower flow rate could start impounding too soon. With a higher maximum height of the barrier, this could significantly increase the flood levels around House, The Yews and Eastern Penshurst.

6.5

The EA's intention to spend money on new embankments may well help shield additional properties in Hildenborough, for example, from flooding when the barrier is fully raised. However, we would be very concerned that this could alter the balance of water in the FSA thereby increasing the amount of water held upstream at Penshurst.

7. Other Issues

7.1

We have reached out to Tom Tugendhat, our MP and have had a number of conversations with Matt at his office. Tom has a conflict of interest with this proposal in that he represents more constituents in Tonbridge and areas to the East who would benefit from the scheme than West of the barrier who are likely to suffer.

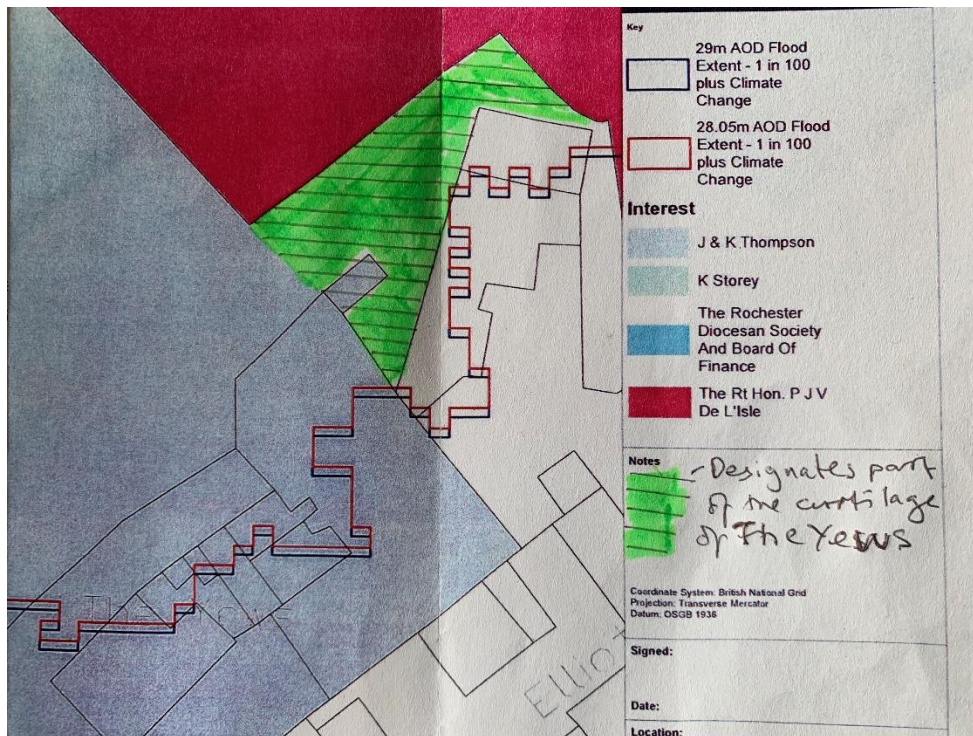
He indeed spoke in the house in support of the EA plans however he has made it clear to us that this support is predicated on the residents of Penshurst being looked after and the appropriate compensation paid for the increased flood risk to land and properties.

7.2

The detailed mapping and measuring of our property 'The Yews' shows a small area to the East of my land (the attached map shows this) that used to belong to the estate but for the last 40 years or more has been part of the curtilage of The Yews.



**Flooding to the shed
& green shaded area
(see map)
24/12/2013**



Land marked in green on the map indicates part of The Yews curtilage at the Eastern end of the property

I have spoken to Ben Thomas at Penshurst Place and he is quite happy that this is the case. He recognises that we have improved this parcel of land and indeed added brick walls creating better security for the adjacent Enterprise Centre. We will follow this up and make this formal with the Land Registry.

We have told the EA and their representatives about this on many occasions as it is the lowest lying area of our property and does flood by over 1 ft when the barrier is fully raised. The photo attached shows this area of the garden and the adjacent field, owned by the Estate, underwater in 2019. The same thing happened in 2013/2014, also flooding the old barn and a shed in the same piece of land. On both occasions I did not make a claim against the EA on either occasion as I did not want to trigger an insurance claim for flooding on this property. We have never made an insurance claim for flooding on this property, and neither did the previous residents.



Photo of flooding in the greenhouse 24/12/2013

7.3

In the June 2020 submission to DEFRA to amend the Leigh Flood Storage Area maximum stored water level are a number of supportive letters. These come from a variety of MPs, Councillors and interested parties all of whom represent areas to the East of the FSA. Unsurprisingly, they are all in favour of the scheme and by contrast there is no representation from anyone whose interest lies to the upstream of the flood barrier who might understandably have significant objections.

7.4

There was a presentation last year by the EA to the Penshurst Parish Council that was open to the public. I attended and there were over 50 villagers present who made serious and strongly worded complaints about the proposal. The EA representatives promised to take note of the comments and have correspondence with the Parish council to make sure our views were properly reflected. I can see no mention of these views in the detailed document of submission which again clearly reflects how little consideration the EA gives to Penshurst and its residents' views. We think this is an unacceptable bias from a public body in a significant and sensitive application.

8 .CONCLUSION: A CALL FOR A FULL, INDEPENDENT INQUIRY

8.1

Some 4 years ago when the first serious meetings with the EA representatives took place, they stated there was a strong desire to gain information from us, share background with us and keep us informed with their progress. Since that meeting, they have been consistently unhelpful, we have not been provided with the information promised and they have adopted the attitude that their proposal does not affect Penhurst and therefore our views carry no weight. I had to resort to a request under "The Freedom of Information Act" to extract some information which was still very slow to arrive and given grudgingly. Information about compensation paid after completion in 1982 was never provided. This is important to me as it took until 1985 for a sum of £10,000 to be paid to the then owners of the The Yews. Was that the total sum paid and was there a protracted dispute ? Some of us contacted Southern Water, who at that stage were responsible for the project and they said all papers were handed over to the EA in good order. Dalcour Maclaren have been representing the EA in recent years and they have been far from impressive and just appear to have the role of an unhelpful buffer between us and the EA.

8.2

As you can see from the issues explored herein, the proposal to increase the flood storage area would have a significant and potentially life changing impact on the livelihood and safety of Penshurst residents and local traffic attempting to pass through the causeway. It has been frustrating to have been promised consultation throughout the process, and then to see such a lack of transparency. For example, four years ago the EA said they would pay for reasonable legal and advisory fees for us relating to understanding and challenging their proposal. This offer was subsequently withdrawn in totality without explanation.

8.3

For the sake of clarity, however I would like to state that my intention is not to stop an expansion of the FSA by way of raising the water retention height at the barrier. I realise that thousands of properties in Tonbridge and further downstream of the Medway will benefit significantly from this. One could however consider how wise the planning authorities have been in granting permission for so many properties to have been built in a well-known flood plain. My argument is that a full impartial, detailed inquiry of the impact of the increased flood risk on Penshurst should take place as soon as possible and be made public. My view on the short coming of what has happened, the absence of actual measuring of water depths at the causeway pinch point in Penshurst being the most important. Following on from that should have been appropriate adjustments and mitigation measures but more realistically significant compensation. The value of our property has already been significantly undermined and the expansion has not yet taken place. This is why we are going on record with a formal objection to expand the size and depth of the Leigh Flood Storage Area, based on the deeply flawed analysis provided by the EA in their application.

Jeremy & Katharina Thompson, Penshurst, 10th July 2020.

River Medway (Flood Relief) Act 1976

The Environment Agency's application to vary the Scheme for the operation of the Leigh Flood Storage Area

Objection to the application

From Mrs Lucy Menard

**Longford, High Street
Penshurst
Kent
TN11 8BT**

I have lived at Longford since June 2007 and have seen how my neighbours' properties have been affected by the flooding and understand that there is now a risk that my garage could be flooded. My household usually has at least two cars parked at the bottom of our garden next to our garage. If we were away from our house for a number of days (perhaps on holiday or visiting family members) and there was a flood there could be damage to cars left on our driveway.

I object to this application to vary the Scheme for the operation of the Leigh Flood Storage Area. The Environment Agency (EA) has failed to properly understand the effect that the operation of the Flood Storage Area (FSA) has on Penshurst. Because of this lack of understanding it has developed a theoretical model of flood events that is fundamentally flawed. This has a knock on effect through the whole project.

The main issue seems to be that there is no measuring of water levels at the confluence of the River Eden and the River Medway a few hundred metres upstream of House and so the EA rely on theoretical modelling.

Measurement of actual flood levels should have been taken at the confluence of two major Kent rivers to understand the effect that the operation of the FSA causes during times of flooding. Instead the EA relies on measuring actual flood levels at Colliers Land Bridge for the River Medway and Vexour Bridge for the River Eden and then estimating the effect after the confluence. This is a fundamental flaw. Modelling is only ever as good as the inputs into it, if the inputs are flawed, the outputs will also be flawed.

The EA assumes that "Natural Flooding" occurs rather than being the effect of impounding the FSA. In my experience of living in Penshurst (in Longford since 2007 and previously at The Village House, High Street, Penshurst 1999-2007) this is not true. There is evidence from neighbours that all floods from 2000 to 2020 in the Village have occurred **after** the impounding of the FSA takes place. This flooding is greater than, and lasts for a longer duration than, any natural flooding.

In the EA's Strategic Flood Policy it states that 1 in 100 years plus climate change is the scenario that should be defended against.

Throughout this project the EA have always quoted 1 in 100 years plus climate change as the scenario used.

In the application the EA have quoted a 1 in 75 years scenario. This conflicts with their own National Guidance.

The current Scheme allows the FSA to be used when the rate of flow in the River Medway exceeds 35 cubic metres per second. Since 2011 the EA have only used the FSA when the flow exceeds 75 cubic metres per second, as to "go too early" would leave them with no spare capacity. Yet they ask to retain the lower figure. This places a great risk on Penshurst. With an increased capacity they could start impounding of the FSA too early and this would increase flood levels.

Tom Tugendhat MP has been supportive of our vulnerable position within this proposal.

Rogues Hill is a major route into and through the Village. It is the route used by the Fire Brigade, Police and Ambulance Service responding to emergency calls. It is also used by school buses and village traffic. When the EA impound the FSA this road floods to a depth of up to 1 metre, making it impassable, yet vehicles still attempt to pass. Raising the level of the FSA can only increase this flooding. This would create a **Moral Hazard**, with the potential for death. The water flow is known to be in excess of 70 cubic metres per second and should a school bus attempt to go through the flood, it could easily be carried away downstream. This risk of multiple death is high. The EA have merely said that it is the responsibility of the Highways Agency.

When the Leigh FSA was built in 1982 the EA's predecessor identified the risk of access to properties on the Penshurst Estate, and paid for the construction of a concrete road to ensure safe access. The EA's proposal to raise the height of the FSA now places access via that same concrete road at risk. There are six residential properties and farm buildings but also a nursery school with

many children in its care who could face being cut off during a flood.



Flooding will affect a number of properties on the High Street, not just Longford. There are buildings used for warehousing, hobbies and garages to the rear of these properties. Increased flooding will cause damage to property and access problems. One of these properties also claimed compensation for flooding caused by the EA's impounding of the FSA in December 2013. Early in 2020 the EA admitted liability and paid compensation to the owner of the property.