RIVER MEDWAY (FLOOD RELIEF) ACT 1976

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

Summary Proof of Evidence of Tim Connell

1 April 2021

1. My name is Tim Connell. My current role is Area Operations Manager for the South London, West Kent and East Sussex Area of the Environment Agency.

2. The River Medway rises in the High Weald in Sussex and runs in a north-easterly direction through Kent into the Thames Estuary near Sheerness. It flows through Tonbridge, Maidstone and the Medway towns conurbation. The River Eden flows into the Medway at a confluence just upstream of Rogues Hill in Penshurst.

3. Tonbridge has been susceptible to flooding for hundreds of years, with reports of flooding recorded as early as 1814. Historic records show that, prior to the construction of the Leigh flood storage area, major floods affected Tonbridge on average once every 10 years with floods in the 1920's, 1947, 1960, 1963, 1968, 1974, and 1979.

4. All of these floods had a significant impact causing damage to property, disruption to business, upheaval to people's lives and the continued uncertainty of the threat of another flood.

5. Possibly the most severe flooding occurred on 16 September 1968. It was this flood event that prompted the construction of the Leigh Flood Storage Area to seek to better protect Tonbridge and Hildenborough.

6. The Environment Agency operates the flood storage area in accordance with a scheme approved under The River Medway (Flood Relief) Act 1976.

7. Since construction of the flood storage area Tonbridge, has been flooded on two occasions, in 2000 and in December 2013. On each of these occasions, storing flood water in the flood storage area reduced the flood depths that would otherwise have been experienced.

8. The flood of December 2013, however, affected numerous homes and businesses in locations including Hildenborough and Tonbridge, despite the operation of the flood storage area.

9. The Environment Agency established the Medway Flood Partnership after the 2013 floods which brought together community interests and local government bodies to develop a strategy to provide further flood protection. The Partnership produced the Medway Flood Action Plan which included the expansion of the flood storage area

10. Attenuation, a flood defence function performed by the flood storage area, is the storage of flood water, either naturally, or through man-made intervention. This storage of flood water can be achieved by constructing flow control structures within a river upstream of vulnerable areas. This structure is used to regulate the flow and so reduce downstream flood risk. Flow that exceeds the flow through the control structure is stored behind a dam or impounding structure in a flood storage area. This impounded water is

released at a controlled rate after the flood event.

11. The success of this approach depends on the availability of suitable land, and the suitability of local geography for the purpose of occasional flood storage.

12. The flood storage area is designed to regulate the flow upstream in order to reduce the extent and depth of flooding which occurs in Tonbridge and Hildenborough.

13. The Environment Agency has produced an animation about how the FSA works. This can be viewed on YouTube and the link is on the Inquiry website.

14. All flood storage areas have a maximum capacity, which is dictated by the local geography, the available land and the selected height of the embankment and/or top water level to which water can be stored. This capacity determines the standard of protection that can be provided to downstream areas.

15. If no defences were in place, 1,570 residential properties in Tonbridge and Hildenborough would be at risk from flooding in a flood event with a 1.3% Annual Event Probability design event.

16. Since the construction of the flood storage in 1981, flooding in Tonbridge has occurred on only two occasions, in October 2000 and in December 2013. This indicates that the probability of flooding has been reduced. Whilst flooding did occur on those two occasions, the FSA still reduced the level of flooding, however the scale of the events meant that flows could not be reduced enough to prevent flooding entirely.

17. In the 2013 flood event, 76mm of rain fell in a 24 hour period at the top of the Medway catchment. At that time, river levels were still high and responding to 43mm of rainfall that had fallen over the previous weekend. The resulting flows recorded in the Upper Medway exceeded both those recorded during the 1968 floods, and those recorded during the last major catchment-wide flood event in 2000.

18. In total, across Tonbridge 84 residential properties and 50 businesses were flooded in December 2013. The Tonbridge town flood walls and operation of the flood storage area protected 701 homes and 250 businesses in Tonbridge and Hildenborough from flooding. The presence of these defences also greatly reduced the flood depths in the town.

19. Under the Application for the Revised Scheme, the Environment Agency proposes to increase the maximum operating water level within the FSA from 28.05m Above Ordnance Datum to 28.60m AOD.

20. This will increase the permitted storage volume from approximately 5,580,000m^3 to approximately 7,200,000m^3 and so enable greater reduction

in peak flow rates downstream during future flood events.

21. Increasing the permitted capacity of the FSA will allow a new flood defence to be built at Hildenborough.

22. Approximately 16.4 hectares of additional land being flooded will be flooded by the expansion of the flood storage area which is an increase of 6% over the existing 278 hectares flooded.

23. The 1976 Act accepts through section 17(4) that property may be affected by the operation of the flood storage area. It gives landowners the right to be compensated when they sustain damage as a result of the Environment Agency operating the FSA in accordance with a scheme. Further, landowners may enter into easements with the operator of the FSA to allow the FSA to flood their land under sections 24 and 25 of the 1976 Act.

24. Much of the additional land that will be flooded as a result of the expansion of the flood storage area is already covered by these original easements. If a landowner wishes, the Environment Agency will enter into easements with those whose land will be affected by the expansion of the FSA.

25. Alternatively, a landowner may seek compensation from the Environment Agency in the event that any of their land that is not covered by the original easements is damaged through the operation of the FSA.

26. Under the Application, the Environment Agency proposes to increase the maximum operating water level within the FSA from 28.05m Above Ordnance Datum (AOD) to 28.60m AOD. It will increase the permitted storage volume from approximately 5,580,000m³ to approximately 7,200,000m³ thus enabling greater reduction in peak flow rates downstream during future flood events.

27. In addition, increasing the permitted capacity of the FSA will allow a new flood defence to be built at Hildenborough. Without the increase in the permitted capacity of the FSA, a new defence in Hildenborough would not be feasible as it would reduce flood storage in the natural floodplain and increase flood risk in Tonbridge.

28. The Revised Scheme reduces flood risk downstream of the FSA and so flood extents are reduced compared with the existing scenario.

29. The benefits of the Revised Scheme in terms of the reduction in flood risk are set out in Section 6.5.2 of the Leigh FSA Expansion Flood Risk Assessment prepared by JBA Consulting and dated August 2020, submitted with the Environment Agency's application for planning permission.

30. With reduced flood depth there is a corresponding reduction in the extent

and severity of flooding. A report produced by VBA Joint Venture Ltd in support of the Outline Business Case for the Leigh Expansion and Hildenborough Embankment Scheme showed that without the benefit of the Leigh FSA there are 1,570 properties that are at risk from flooding in Tonbridge and Hildenborough for a 1.3% AEP design event. With the benefit of the Leigh FSA under the current scheme, around 318 of these properties will be protected from flooding in a 1.3% AEP design event, and the severity of flooding to the remaining properties will be reduced.

31. The LEHES will protect a further 216 properties from flooding in a 1.3% AEP design event. In addition, the severity of flooding to the remaining properties will be further reduced.

32. We are very aware of the strength of feeling within the community at Penshurst over the Revised Scheme. Whilst the concerns that the proposed revision to the Scheme would increase flood risk in Penshurst are understandable, evidence shows these concerns to be unfounded. Historic flooding in Penshurst has occurred either prior to, or during the early stages of impounding in the FSA, so will have arisen as a consequence of high fluvial flows.

33. We request that the Minister approves the Revised Scheme.

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Tim Connell