

Date: 03.08.2021

Dear Resident

**Post Incident Review Findings and Redeployment Plan:  
Beales Corner, Bewdley, Temporary Barrier System.**

I am writing to inform you that we have completed our Post Incident Review for the Beales Corner Temporary Barrier System. The review has investigated the abnormal barrier operation and breach of the flood barrier, and provided a technical assessment of the suitability of continued deployment of the barriers.

Trialled as a short term measure, and not intended as a long term alternative to a permanent scheme, the Environment Agency have deployed the Beales Corner Temporary Barrier system 25 times on a best endeavours basis. During this time, our understanding of the performance and resilience of temporary barrier systems has evolved. A key requirement of the review was to ensure that the temporary barrier system, whilst aiming to reduce the risk of flooding to property, is of sufficient stability and strength as to not increase the risk to life from a barrier failure.

The review has built on the initial findings from the site inspection immediately after the event, which we shared with you in January 2021. It draws on a number of new specialist supporting assessments undertaken by third party suppliers including a Ground Investigation, Geophysical Survey, Topographical Survey, Sliding Review and a Highways Assessment. You will find the full Post Incident Review attached to this letter if you are receiving it by email. It can also be found by visiting this website: <https://consult.environment-agency.gov.uk/west-midlands/bealesfrms/>

The review has shown that the barrier structure performed as designed until the sliding forces at the lowest section became too great and the barrier began to move. As additional load was transferred to the adjacent sections the barrier breached. The sliding failure occurred due to the Factor of Safety (FoS) against sliding being influenced by a number of site specific and environmental factors which reduced the resisting frictional forces. These factors included the achievable membrane apron width, road surface, uplift, surface camber, proximity to the kerb line and dynamic loading, and the contribution of each has been calculated.

In light of the findings, the review has recommended that a robust FoS against sliding is set in accordance with the relevant British Standard in order to provide the necessary reserve of resistance against unplanned variables. Taking into account the results of the sliding assessment and operational requirements, a revised optimum alignment for the barrier has been identified. The County Council have planned for improved road resurfacing in September which is tailored for temporary barrier deployment.

Even with this alignment and highway improvements, due to the nature of the site, the recommended FoS cannot be achieved by the barrier alone without additional restraint. The most suitable restraint options for the site are concrete barriers or water bowsers.

A number of recommendations aiming to reduce the risks from barrier failure to the community, Environment Agency operatives and Local Resilience Forum Partners have been identified in the review. Many of these recommendations, such as resurfacing of the carriageway, updated

evacuation trigger levels, and exercising the additional resilience measures, are necessary before redeployment of the temporary defence system can occur.

Our aim is to undertake controlled redeployment of the Beales Corner Temporary Barrier System by the end of September 2021. This is dependent on implementation of the above measures and the success of the exercise. We view this as a short term measure whilst a permanent engineered system built into the environment is being worked on. The funding announcement of £6.2 million for a scheme made by Minister Pow last week helps positively.

Redeployment with additional resistance measures is not presented as a long term sustainable solution for Beales Corner. This is due to the considerable additional time to deploy requiring longer road closures, increased resource requirements, and the analysis being valid for a maximum period of 3 years supported by regular visual inspection. Beyond which point, an updated review will be necessary to determine whether the site specific, environmental and ground conditions remain suitable for temporary barriers.

The Environment Agency does not have a legal responsibility to deploy, operate or maintain flood defences, and the success of the Beales Corner Temporary Barrier System deployment is influenced by the flood forecast, the availability of trained and available staff, routes to site being clear, time available for deployment and the performance of the barrier and pumping arrangements. As with all mobile flood assets, our position remains the same as when we started the trial of these temporary barriers in this location, in that we cannot guarantee that we will always be able to deploy the temporary barrier.

Should a flood occur over the next few months until we are able to safely redeploy, we will continue to provide the support we agreed with individual residents back in February.

We will be holding a public drop-in session on Tuesday 17th August to answer any questions you might have on the review and our approach to redeployment of the barriers. This drop in will be held at the entrance to Millside Court on Stourport Road between 14:00 and 19:00, and we look forward to speaking with you at any time within this period.

This letter has been sent to all residents who we have contact details for. Please feel free to share it with any of your neighbours who may have missed it.

Yours faithfully,



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