Calderdale Flood Recovery and Resilience Programme Board

Date of Meeting: Monday 6th November 2017

Report: Use of Reservoirs for Flood Attenuation

1. Issue

This report provides an update on the ongoing work to assess the potential for reservoirs to assist with reducing flood risk in Calderdale, looking at all of the various issues that need to be considered.

2. Recommendation

The Programme Board is asked to note the update and continue to support the ongoing partnership approach to this complex issue. The Board is particularly asked to note YW's intention to undertake a trial drawdown of some reservoirs above Hebden Bridge over the coming winter. It is important to note that this is a short-term trial, intended to provide some contribution to reduced risk this winter, and also to help inform future strategy.

3. Update

Reminder of context:

- Since the floods of Boxing Day 2015, Yorkshire Water and the Environment Agency have undertaken a significant amount of work to understand the impact that altering reservoir operation may have on flood risk, and also what this means for other critical issues such as security of water supply, reservoir safety, environmental impact, etc. This work has been carried out both locally and nationally; the national work involves YW, EA, Defra, Ofwat and United Utilities.

- The work undertaken has included regional screening of reservoirs and detailed modelling of the Hebden Water catchment (EA) together with detailed modelling of the water resources impacts and consideration of safety and operational issues (YW).

On Friday 27th October, YW announced its intention to trial the drawdown of some of the reservoirs above Hebden Bridge over autumn / winter 2017 / 18. The reasons why YW feels able to progress with a trial at this point are:

- Evidence provided by the EA that shows the potential benefit of drawing down reservoirs above Hebden Bridge on flood risk in the town.

- Improved understanding at YW of the potential impacts on water resources from its long term regional modelling.

- Specific modelling undertaken by YW for autumn / winter 2017 / 18 that shows reduced water resource risk for this period, due to the wet summer that has been experienced.

The Board is asked to note that last point in particular. The wet summer that has been experienced in the north of England means that YW's overall (regional) water resources stocks are healthy at present. This give us greater confidence that we are able to provide some partial drawdown on selected reservoirs this winter, without causing a significant increase in water resources risk as we head into spring / summer 2018. This overall resource situation – which is significantly different to the position 12 months ago – is one of the reasons why the present proposal must be considered as a trial, and not as a permanent change to reservoir operation.

The details of the proposed drawdown trial are still being agreed by YW and the EA. The Board is asked to note the following:

- The trial will be limited to some of the reservoirs on the Hebden Water catchment, above Hebden Bridge, as this is where the EA's modelling shows greatest flood risk benefit.

- The proposal is to drawdown some of the reservoirs to 90% full by volume. It is important to note that this is by volume, not by level. Due to the V-shaped nature of the reservoir valleys, the top part of the reservoirs store more volume by unit depth than the lower parts (greater surface area at the reservoir top water level). A 10% volume drawdown – to 90% full – does not, therefore, equate to a 10% drawdown by depth. 10% volume drawdown across reservoirs above Hebden Bridge equates to between 600 and 900mm below reservoir spillway level (depending on the reservoir).

- For operational reasons, YW is unlikely to be able to drawdown all six of the reservoirs above Hebden Bridge. The reservoir operation is manual, and so requires YW to have the appropriately skilled and trained staff available to operate. YW also needs to ensure that its staff are kept safe, and there will be times (such as during adverse weather conditions or overnight) where operations are limited or not possible. It is likely that the trial will be limited to 3 reservoirs in the first instance.

- The trial is likely to comprise increased compensation flows from the reservoirs into the downstream catchment, to allow the reservoirs to be held lower. YW is working closely with the EA to understand how this operation can work in practice and in particular how it can be ensured that any release of water into the downstream river does not cause an increase in flood risk.

- In order to ensure that it remains compliant with relevant legislation, and in particular the Water Framework Directive, YW will have to advertise the trial for a minimum period of 28 days before it can be formally commenced. This is required so that individuals and organisations have a chance to comment on the proposals before they are formally implemented. YW and EA will also need to ensure that they take into consideration any responses to this consultation when planning the formal trial. YW hopes to advertise the trial by mid-November.

- During the consultation period, YW and EA will continue to work together towards a timely implementation of the trial.

- Whilst the trial should provide some flood risk benefit this coming winter, it is hoped that the results of the trial will also help to inform future strategy and understanding of the issues involved and how those can be managed in the future.

4. Conclusion

The Board is asked to note the proposed trial and support YW and EA in its implementation.

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