King's Pond – Flood Risk Assessment

Summary

As part of their preliminary design proposals, Five Rivers have prepared **5080D Flood Risk Statement V4**.

What would be the change in Flood Risk for the two options for the King's Pond site?

Dredging Plus

This option would make no significant changes to the size, level or volume of the pond.

There would be no change to Flood Risk.

Areas on the West (Railway) side of the pond would still be subject to local flooding when pond levels are very high.

The ground levels in relation to the level of the top of the dam are such that there is no risk of upstream flooding.

The downstream flood risk would remain the risk of the pond over-topping the dam due to blockage of the outflow or if an extreme rainfall event produces an exceptional flow into the pond. At present this risk is small but is a consideration when thinking about the effect of climate change.

River & Pond

In this option the weir would no longer be setting the level of the water in the pond. The sluice gate would be raised to allow the river water to pass out at a lower level. The outflow pipes from the weir chamber would remain in use. (**See 261027 Weir & Sluice Sketches**)

The level of the retained pond would be lower than that of the current pond. The outflow level at the weir chamber would be 600mm lower than the current weir plate level. This would mean that the whole area of the present pond becomes a potential flood attenuation basin.

Local flooding risk would be reduced. There would be no upstream flood risk.

Removal of the attenuation effect of the current pond and weir could increase downstream flood risk in high rainfall events. However, this risk can be removed in the design. From EA records we know what the highest flow rates have been over the current weir without causing a downstream problem. The new outflow arrangement can be "choked" to only allow the same flow rate from the pond.

In a very high rainfall event, if inflow from the river was more than the "choked" outflow rate then water would he held back in the river channel and wetlands, and ultimately even the pond, until it could drain away.

Downstream flood risk would arguably be reduced as the risk of the dam overtopping in a high rainfall event would be greatly reduced.

Hydraulic Modelling and detailed Flood Risk Assessment

As any potential increase in downstream flood risk could be designed out, the T&FG decided not to instruct Five Rivers to undertake hydraulic modelling and detailed flood risk assessments. This avoided unnecessary expenditure as it would have to be done again as part of the detailed design during the next phase of the project.

Whichever option is decided the EA will require hydraulic modelling and detailed flood risk assessment as part of their permitting process.

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