

The Washburn Valley Reservoirs – Spillway Improvements

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SYNOPSIS. The Washburn Valley reservoirs comprise a cascade of four impounding reservoirs situated about 12 km to the west of Harrogate in North Yorkshire. The three lower reservoirs, Lindley Wood, Swinsty and Fewston, were formed between 1875 and 1879, by the construction of earth embankment dams with puddle clay cores. The upper reservoir, Thruscross, is a mass concrete gravity dam constructed in 1966. The upper three reservoirs supply water to Leeds while the lowest, Lindley Wood, provides compensation flows to the River Washburn.

The three lower dams would be overtopped during the Probable Maximum Flood (PMF). The situation was complicated by the publication of the Flood Estimation Handbook (FEH), which led to a review of the conceptual design and a lengthy delay, which was recovered by carrying out works at two dams in one season, instead of one per year as originally planned.

The rehabilitation works consisted of crest raising and spillway modifications at the three embankment dams.

- Lindley Wood: a 3 m high earth embankment was built downstream of the existing crest road, which will be inundated during extreme floods.
- Swinsty: the crest was raised 1.2 m and the multi-span masonry arched bridge replaced by a clear span.
- Fewston: the crest was raised 0.9 m and the multi span masonry arched bridge replaced by a clear span.

At £6.5 M this is one of the largest reservoir safety rehabilitation schemes undertaken by *Yorkshire Water* (YW). It was successfully completed in 2003 on time and within budget by team working.