

Jubilee River, Black Potts weir repairs update

September 2021

The repair works are now complete

The Jubilee River is fully operational. The repairs ensure the protection of the weir and railway bridge for the next 60-100 years.

Back in August 2020 we discovered during a planned dive inspection that the downstream area to Black Potts weir had been eroded.

Black Potts weir is one of 5 control structures along the length of the Jubilee River and is the final structure separating the tail end of the Jubilee River from the River Thames near Datchet. The weir structure is integrated into the railway bridge that carries the Windsor & Eton Riverside branch line.



Aerial view of completed weir repairs

The work

Between October and Christmas 2020 we were not able to operate the Jubilee River due to the risks this could have posed to the weir structure and the railway bridge above it,

This meant that we had very short period of time to bring the Jubilee River back into service ahead of anticipated high flows in the River Thames from Christmas onwards.

The team developed a design solution to be implemented in 2 phases.

Phase 1

The first milestone was installing a line of new sheet piles downstream of the weir and backfilling with grout and ballast. This was completed before Christmas 2020.

The team also completed a computational fluid dynamics (CFD) modelling analysis of water flow velocities and the potential for river bed scour. This enabled us to produce a temporary operating procedure for the Jubilee River for the 2021 winter period meaning that we could safely operate the Jubilee River after the first phase of the repairs.

Immediately after Christmas the flows on the River Thames did increase and we used the Jubilee River to protect people and property. We then operated it a second time in early February.

Without the rapid pre-Christmas delivery of the first phase of the repair work, this would not have been possible.



Installing sheet piles



Floodline 0345 988 1188

Incident Hotline 0800 80 70 60

Phase 2

In February 2021, once the high flows had subsided, we began the remaining phase of the repairs. This was the new weir apron (the downstream area of the weir) slab and downstream rock armour protection.

Key statistics include:

- 56m of steel sheet piles were installed
- 92m³ of grout was pumped behind steel sheet piles to fill voids caused by scour.
- 110m³ of heavyweight (3,900kg/m³) concrete was poured to create new apron slabs.
- Over 2800 tonnes of rock armour stone and 360 rock bags were placed to help protect the weir from future erosion. We saved costs and recycled some of the rock armour from existing materials.



Placing concrete

Other work

- We assisted with replacement flow gauge work near Old Windsor by using the Black Potts Weir compound to get the equipment onto the River Thames. This avoided extra costs and land use to create a separate compound. The gauge work gives improved river flow monitoring in this section of the river.
- We used the team and existing resources to complete some routine repair work at Manor Farm weir on the Jubilee River.
- We are currently planning some routine maintenance and repairs to the flood defences that are part of the Maidenhead, Windsor & Eton scheme in Cookham. We will begin with a survey to determine the current condition of this part of the scheme

Working in Partnership

For the repairs to happen quickly and efficiently, it was vital to work in partnership.

Ian Hubbard, BAM Nuttall Ltd, Divisional Director

"BAM are proud to be engaged in a continuing successful relationship with the EA, resolving technical challenges to tight timeframes, ensuring flood protection is sustained in the local communities by the construction, maintenance and renovation of EA assets"

Joseph Cairns, Network Rail, Scheme Interface Manager:

"Network Rail's Asset Protection & Optimisation (ASPRO) department exist to ensure that the railway infrastructure is protected from proposed outside party work above, below or in close proximity to railway land. In the case of the Black Potts Weir scheme, we requested a list of technical/engineering deliverables to review prior to works to assure that neither the permanent or temporary works would introduce unacceptable risk to both the safe operation of the railway or the structural integrity of the railway viaduct.

The project team from the EA and its partners both understood our concerns and accommodated our requests in terms of changes to the methodologies/designs and other conditions to protect the railway, such as vibration monitoring of the viaduct. The promptness and quality of the deliverables received gave us adequate assurance that the work were being completed competently, and with risks to the railway being removed or mitigated so far as was reasonable".



Information about the Jubilee River

The Jubilee River was designed to appear natural with the channel varying in appearance. As such it also provides a fantastic outdoor resource for the area with accessible paths, bridleways and portage points along its length.



- The Jubilee River protects approximately 3,200 homes from the risk of flooding.
- The Jubilee River acts as a flood relief channel for the River Thames, allowing water levels to be controlled and diverted from the Thames during times of high flow.
- Visit www.gov.uk/government/publications/jubilee-river-flood-alleviation-scheme
- Follow us on Twitter @EnvAgencySE
- [Residents' Information leaflet about the Jubilee River](#)
- Environment Agency's Waterways [Facebook page](#)

Find out if you're at risk of flooding

- <https://www.gov.uk/check-flood-risk>
- [sign up to Flood Alerts and Flood Warnings](#) or call Floodline on 0345 988 1188
- See which warnings are in force please visit our <https://flood-warning-information.service.gov.uk/warnings>



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