



*River Oughton downstream of Oughtonhead Springs prior to the scheme*

# RIVER HIZ

ALLEVIATION  
OF LOW FLOWS



THREE VALLEYS  
WATER



ENVIRONMENT AGENCY



## BACKGROUND

The River Hiz flows northwards through Hitchin in Hertfordshire, where it is joined by two principal tributaries, the Rivers Oughton and Purwell. All three are fed by Chiltern chalk springs. The valley of the River Hiz between its source at Wellhead and Hitchin town centre is a popular area for walking and horse riding.

Water has been taken from underground supplies held in the chalk around Hitchin for over a century. The amount taken has increased over the years to meet the needs of a growing local population.

As demand has increased and rainfall patterns have changed, spring flows have reduced in the upper Hiz, and the stream has been drying up, particularly during periods of drought. The spring-fed wetland on Oughtonhead Common has deteriorated to such an extent that it lost its status as a Special Site of Scientific Interest in 1970.

## FINDING A SOLUTION – WORKING IN PARTNERSHIP

The Environment Agency, formerly the National Rivers Authority, and Three Valleys Water have worked together to find solutions to problems caused by low flows. The River Hiz is one of three low-flow rivers in the area whose problems are being addressed by Three Valleys Water; the first successfully completed scheme was on the River Ver in Hertfordshire, followed by a scheme to improve flows on the River Misbourne in Buckinghamshire.

The primary objectives of the River Hiz Project were to:

- restore the wetland ecology of Oughtonhead Common
- improve the amenity of the upper River Hiz
- maintain secure water supplies for the residents of Hitchin.

Following investigative work, a number of options were identified. These included river support from groundwater, recirculating river water from downstream, improved wetland and river management, relocating public water supply boreholes and importing bulk water supplies from Grafham Water Reservoir, near Huntingdon, Cambridgeshire.





# RIVER HIZ ALLEVIATION OF LOW FLOWS SCHEME

(1) A new pipeline has been constructed from Offley Bottom Pumping Station to the Oughton Head Pumping station and from there to the head of the River Oughton. Water is abstracted at these pumping stations and normally used to supply customers in Hitchin and beyond. In future part of the flow will be diverted before disinfection directly to the river to maintain flow during the summer and early autumn. By connecting a new discharge pipeline from Offley Bottom and using either source to support river flows, the security of public water supplies will also be enhanced.

(2) The new outfall at the head of the River Oughton is constructed from natural stone in order to emulate the appearance of an outcrop

(3) A new culvert has been constructed to allow water to transfer to the wetlands which are part of Oughtonhead Common. This should ensure water levels in the wetlands will be less vulnerable in dry periods.

(4) The weir and bridge at the north end of the wetlands have been rebuilt which will enable water levels in the wetlands to be maintained and provide a more stable environment for the area which has a rich ecology but is hoped will be encouraged to recover to the situation hitherto when the area was a designated nature reserve.

(5) Two weir gates have been reconstructed to improve control of the water levels in the main channel to the old 'Westmill' and on the two side streams which reconverge some 50 metres downstream into the main river.

(6) A new flow gauging station will be erected to monitor flows in the river and the effect of the discharge from the pumping stations upstream.



(7) Pipework has been modified at Wellhead pumping station and a new pipe laid to the river to enable untreated water to be pumped directly to the millpond at times of low flow and improving the amenity of the river whilst maintaining public water supplies.

(8) Disused wells at Bath Springs have been refurbished to enable water to be pumped into the duck pond adjacent the Windmill Public House at Charlton.

Many parts of the walk can be reached by bus. Contact the Hertfordshire Traveline on 0345 244344 to find the best route for you to use.

— Riverside Walks  
- - - - - Other Paths



Damselfly



Diagrammatic and not to Scale.



*Right: Wellhead  
Pumping Station*



## THE SCHEME

Following extensive consultation with interested parties, Three Valleys Water and the Environment Agency undertook the following work:

### ***River Hiz***

Modification of an existing borehole at the Wellhead public water supply borehole to pump water into the River Hiz at Charlton Mill Pond;

Conversion of a disused public water supply well at Bath Spring, Charlton, to pump water into the River Hiz at the Windmill Public House.

### ***Oughtonhead Wetlands***

Construction of a culvert to divert water from the River Oughton to the adjacent Oughton wetland;

Reconstruction of the existing small weir at the downstream end of the Oughtonhead wetland as a sluice, to achieve greater control of water levels in the wetland;

Repair of the existing main and secondary sluice structures at West Mill, downstream of Oughtonhead, to minimise leakage through the existing structures and optimise water use;

Construction of a low flow river gauging station downstream of West Mill for system control and monitoring purposes.

### ***River Oughton***

Modification of boreholes at the Offley Bottom and Oughtonhead public water supply borehole and construction of a pipeline and outfall structure to allow water to be pumped into the River Oughton at Oughtonhead Springs.

With the completion of the works water will be pumped into the Rivers Oughton and Hiz when the upper lengths of river begin to dry out. In most years the springs flow naturally, but in dry

*Right: Overgrown  
vegetation due to low  
flows at Charlton Mill  
Pond*



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*Right: River Hiz at the Market Square, Hitchin town centre*

*Below right: Modification work in progress at the Wellhead Pumping Station*



years Three Valleys Water will pump water in to maintain a flow. This is an economic solution to low flows which has been used successfully at other locations to maintain healthy chalk streams.

Hertfordshire County Council, North Hertfordshire District Council, English Nature and the Herts and Middlesex Wildlife Trust who manage the Oughtonhead Common are co-operating closely with the Environment Agency and Three Valleys Water to restore the ecology of the wetland. Water and habitat management measures will make a visible improvement to the environment for the benefit of the local community and visitors to the area.

Work commenced in September 1995 (the Bath Spring Well river support works were completed as a pilot scheme in 1993) and the major part of the alleviation scheme is now completed.



ENVIRONMENT AGENCY



THREE VALLEYS  
WATER

**The Environment Agency**, one of the most powerful environmental regulators in the world, is responsible for the protection of land, air and water in England and Wales. The Agency has the duty to conserve, redistribute, augment and secure the proper use of water resources, whilst at the same time conserving and enhancing the environment. A key aim is to manage water resources to achieve a balance between the needs of the environment and those of abstractors.

**Three Valleys Water** was formed in 1990 but is made up of three former local companies, Colne Valley, Lee Valley and Rickmansworth Water, which have a history of supplying water in this area for more than 100 years. Three Valleys Water employs just over 900 staff, and supplies up to 700 million litres of water each day to 2.3 million customers in a 3,000 kilometre area covering the northern Home Counties and parts of north London.

