

# Flooding in Wheatley: Potential for Natural Flood Management (NFM) in Littleworth

## 1 Introduction

The centre of Wheatley has a history of flooding with houses having been flooded three times in the last thirty years. The centre of Wheatley straddles a small brook with a catchment area of a few square kilometres. Historically the brook ran down what is now the High Street but was culverted under the High Street in the 19<sup>th</sup> century. The flooding occurs when the flow from the brook exceeds the capacity of the system and excess water flows down the High Street.

Currently SODC are working on the design of a flood storage scheme on the brook upstream of Wheatley.

## 2 Proposed location for NFM intervention in Littleworth

Within the catchment of Wheatley Brook there is a disused railway cutting that runs through Littleworth. The construction of the railway cutting disrupted the local land drainage and during flooding events water flows down the railway cutting, see Figure 1.

The lower part of the railway cutting is occupied by allotments but the upper part of the railway cutting is part of the Littleworth Nature Reserve. Most of the flood water in the railway cutting enters from a small brook that drains the area to the north-west of the railway cutting. Though the area of the catchment for this tributary is small, during intense rainfall it can contribute significant amounts of runoff, presumably due to its steep valley sides.



**Figure 1:** Flow down the railway cutting in Littleworth (during flood of July 2012).

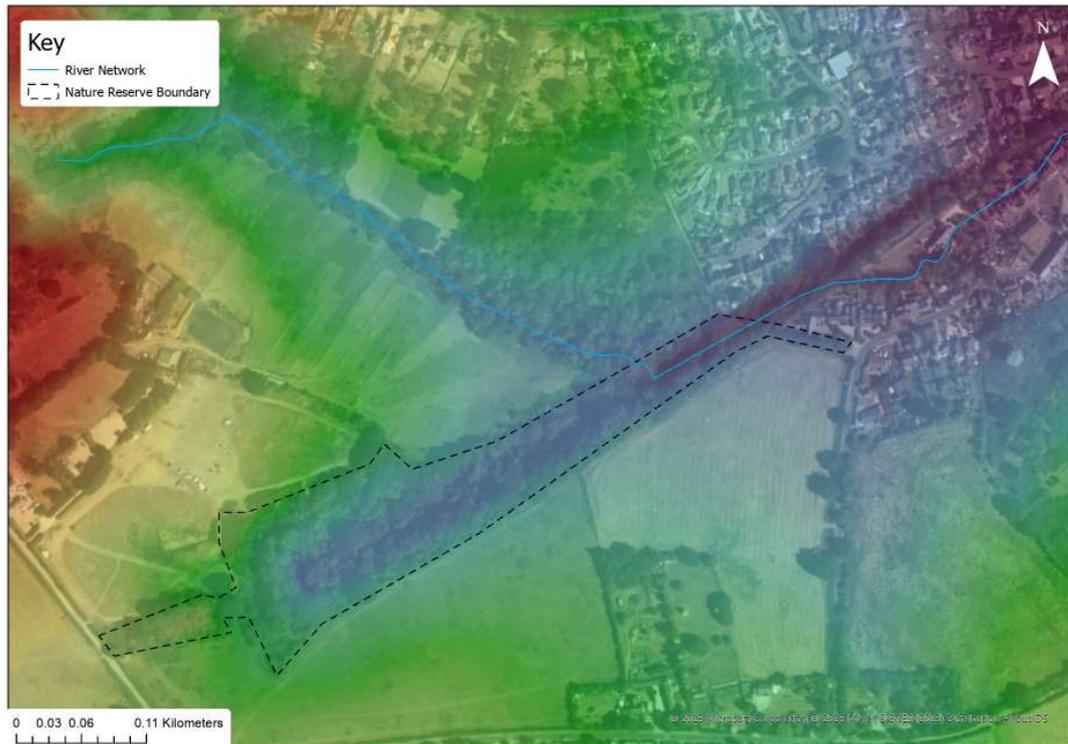


**Figure 2:** Flood Map for Littleworth showing the brook entering from the Northwest and running down along the cutting.

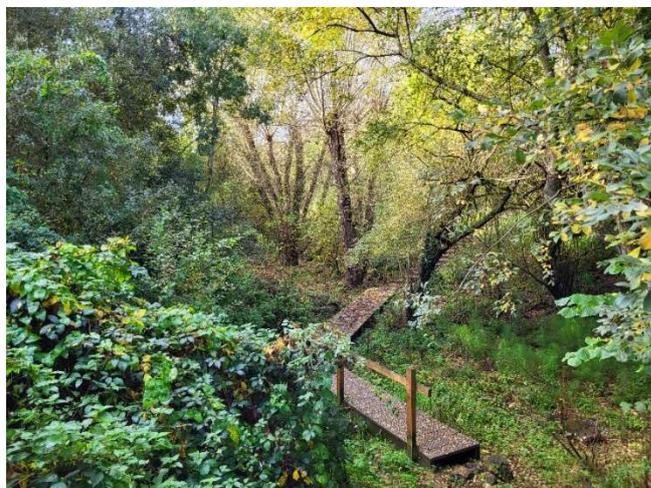
### 3 Land ownership & Maintenance

It is understood that the land is owned by Oxfordshire County Council and lies within the parish of Horspath.

The area of the railway cutting upstream of the allotments forms the Littleworth Nature Reserve and is maintained by the Friends of Littleworth Nature Reserve. There are a number of trees within the Nature Reserve which they want to fell to remove shade from a butterfly meadow. It is likely, therefore, that any logs could be sourced locally from within the Nature Reserve to be used for constructing NFM features.



**Figure 3:** Map of the nature reserve boundary, overlaid onto LIDAR elevation data.



**Figure 4:** View of the Nature Reserve looking across the railway cutting where the footpath crosses the line. The base of the cutting slopes from left to right.

#### 4 Proposed NFM measures in Littleworth Nature Reserve

We are looking to create a series of NFM features along the railway cutting, to temporarily hold back water during storm events, starting from where the tributary enters the cutting, extending to the beginning of the allotments. Options for features include leaky dams, debris dams made from woody material and banded storage areas (see figure 5 for example photographs). It is envisaged that any NFM interventions would be to complement any flood storage provided further downstream in the catchment rather than an alternative.

We would be developing designs as part of this proposal.



**Figure 5:** Example photographs of a leaky dam (top left), debris dam (right) and banded storage area (bottom left).