Wheatley Neighbourhood Plan: Contribution from Wheatley Flood and Drainage Committee

1 Introduction

A Neighbourhood Plan is currently being prepared for the Wheatley area. The preparation of this plan raises a number of flood and drainage issues which outlined in this note prepared by the Wheatley Flood and Drainage Committee.

The main issues are:

a) Surface water runoff

b) Sewage treatment

c) Clean water

d) Flood risk as a constraint on development

e) Environmental issues.

These are considered in detail below.

2 Surface water runoff

The construction of houses and associated roads normally increases the area of impermeable surfaces. When it rains the runoff from these surfaces has to be diverted to a local watercourse or infiltrated into the ground.

It is a normal condition for developments on green-field sites that the maximum surface water runoff from the site should be controlled to that which would be expected from a 'green-field', that is, there is no increase in the maximum flow in any receiving watercourse. This is normally achieved by a combination of infiltration into the ground and storage within the development site. Infiltration in Wheatley is, in general, not good as the soil in many areas has a high clay content. Different locations around the Wheatley area will have different infiltration capacities but the runoff can always be reduced to 'green-field' runoff by providing an appropriate amount of storage on site. If infiltration is to be used then there is the issue of maintenance.

Infiltration systems need periodic maintenance if their performance is to be maintained. This needs to be addressed by the developer.

3 Sewage treatment

An increase in the number of houses in the area will increase the volume of sewage going to the Wheatley Sewage Treatment Works. This may have implications for the capacity of the sewers leading to the treatment works and the capacity of the treatment works. Thames Water has an obligation to provide adequate sewer and treatment capacity. To fulfil this obligation Thames Water monitor planning applications and approvals and, I assume, Local Neighbourhood Plans.

The flow of effluent to the treatment works increases substantially when it rains. This is primarily due to runoff from hard surfaces such as roads and roofs which are connected to the sewer system. When there is no rain the flow to the treatment works is referred to as the 'dry weather flow'. The treatment works can treat up to three times the dry weather flow. Since about the 1950s/60s the runoff from roads and roofs for new developments have been separated from the sewage and dealt with separately. This means that new developments increase the dry weather flow but have little

impact on the maximum flow to the treatment works. The result is that the impact of new housing on the required capacity of the treatment works is often less than is often imagined.

The capacity of the storm tanks that temporarily store flows greater than the treatment works can cope with is regulated by the Environment Agency. The minimum capacity is specified in terms of a volume per head of population or population equivalent. If the population of the area increases then the minimum capacity of the storm tanks increases. Thames Water provided an additional storm tank within the last two years and so it is expected that the present capacity of the storm tanks would be sufficient to satisfy the minimum requirement specified by the Environment Agency.

My own view is that the storm tanks are not of sufficient capacity but this is an issue that needs to be pushed with the Environment Agency separately from any development.

4 Clean water

New housing will mean increased demand for clean water from Thames Water for water supply. As for sewage treatment works, Thames Water are obliged to provide a suitable potable water supply.

5 Flood risk

Maps showing fluvial flood risk are available on the Environment Agency web site. It is recommended that no area identified for housing should be in a flood zone as identified by the Environment Agency.

6 Environmental issues

There are a number of potential environmental issues that need to be considered.

a) Low water consumption. There are a number of steps that can be taken to reduce the water consumption of houses, for example, the collection and re-use of water from roofs. These are most easily and cheaply incorporated into a house at the time of construction. While reducing water consumption such measures normally imply increased capital costs for the houses. This increased capital cost should be offset during the life of the house by lower water charges. It is not clear to the Flood and Drainage Committee how and to what extent such issues can be imposed via a Neighbourhood Plan

b) Water quality in the River Thame. The treated effluent from the Wheatley Sewage Treatment Works is ultimately discharged to the River Thame. The treated effluent has high nitrate concentration. There is a belief that the nitrate load from the sewage treatment works in the River Thame catchment have an adverse impact on the ecology of the River Thame. Any increase in flows to the sewage treatment works will increase the overall nitrate load to the River Thame and so lead to further damage to the River Thame. Thus there is the potential that further housing in the River Thame catchment will lead to further degradation of the ecology of the River Thame.

   It might be possible to use constructed wetlands between the Wheatley sewage treatment works and the River Thame to improve the water quality of the treated effluent entering the river. The idea is that plants and the microbes in the wetland absorb some of the nitrates before they enter the River Thame. This raises a number of issues: Is it practical to have a constructed wetland at Wheatley? Can we expect a developer to contribute to the cost of such

wetland? If additional funds were required from other sources then where would these come from

Roger Bettess
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