

Castle Ward Committee

25th March 2010

Ouseburn Drainage Catchment - Review

Report by: **Director of Technical Services**

Director of Strategic Housing , Planning and Transport

Ward Implications: Woolsington, Castle, Parklands, Fawdon, East Gosforth

Please indicate

For Information

Not confidential

Not confidential

1. **Purpose of the report**

- 1.1 At the November meeting of the Newcastle Great Park Advisory Committee a Member requested that a report be prepared for the January Committee. The report was to provide an overall summary of previous, current and future works relating to surface water drainage in the Ouseburn.

Members were asked to comment on and agree to the report before forwarding it to Woolsington, Fawdon, Parklands and East Gosforth Ward Committees for their information.

This report describes the effect of Sustainable Urban Drainage Systems (SUDS) and development on the Ouseburn Catchment. It shows when work was completed or when it will start and issues requiring further thought by the main organisations involved. The report also shows that the various organisations, including the Environment Agency and Northumbrian Water, are working closely together.

The report provides a clear audit trail of the relevant public organisations and their duties and legal responsibilities.

2. **Recommendations**

- 2.1 The Ward Committee is recommended to note the report for information.

3. **Introduction and background**

- 3.1 The Ouseburn flows into the River Tyne and is classified by the Environment Agency as a Main River. They define Main Rivers as usually being larger streams and rivers or are important to the area. All Main Rivers are identified

on an official document such as a Main River Map.

- 3.2 The Ouseburn is about 20 km long and starts in high ground around Callerton village and Whorlton Hall. It flows eastwards through Woosington, Brunton Bridge. After passing by the Great Park development it carries on by Brunton Park, Red House Farm and the Whitebridge estate.
- 3.3 It gradually turns south through South Gosforth and Jesmond Dene before entering a culvert under City Stadium. Near Ouseburn Farm it comes out of the culvert and then flows into the River Tyne near the new Ouseburn Barrage.
- 3.4 The Ouseburn catchment covers an area of approximately 62 square kilometres. In the north it extends into Northumberland between Ponteland and the Airport. Towards the east it includes Killingworth and the communities around it. Northumbrian Water's (NWL) foul sewage catchment includes Ponteland and there are no capacity problems within this network.
- 3.5 To the west of Brunton Bridge the area is generally rural. East of the bridge and up to its junction with the River Tyne it is surrounded by housing developments built from the end of the 19th century up to the present time.
- 3.6 In earlier presentations to the Advisory Committee the Environment Agency highlighted that flooding in the flood plain was a natural and necessary process. There had been two major floods as long ago as 1900 and 1903 and since then the catchment has changed significantly. Flooding over the last thirty years was not as severe but had more significant impact due to development in the area. Several areas were identified as at risk of flooding but they had low scores on the Agency's priority assessment.
- 3.7 Many of the estates built across the catchment have added flows to the foul sewerage system. They have also added surface water straight into the Ouseburn. The river takes some surface water from parts of North Tyneside as well as Newcastle Airport. Highway Drainage from the A1 Western Bypass and the A696 Woosington Bypass flows into the Ouseburn.
- 3.8 In 1999 the Environment Agency completed a mapping project that identified the limits of the flood plain. Before then some developments had been built on it. Now before any development receives planning approval it has to show how it will reduce its effect on the Ouseburn flood plain.
- 3.9 Since 2000 there have been flooding incidents affecting Acomb Crescent, the western edge of Brunton Park and properties east of Three Mile Bridge. There have been minor incidents downstream at South Gosforth and allotments in Jesmond Dene are regularly flooded.
- 3.10 The Ouseburn was one project in DEFRA's Making Space for Water Pilot Study. It looked at how the surface water sewers discharging directly into the Ouseburn worked with or against each other.
- 3.11 The report provided evidence that the Ouseburn could reach a level where it affected the sewer system discharges in the Red House Farm area. It also showed that the Red House Farm and Kingston Park estates produced most

of the storm water running into the river. In July 2007 one storm over the Kingston Park estate contributed almost 80% of the total river flow around the Red House Farm outfall.

- 3.12 A study in 2005 showed that to allow these sewers to keep working would require the water to be stored up from the A1. They estimated that between 80,000 and 180,000 cubic metres would need to be stored. This is extra to the storage that existed or was to be provided by the Great Park development. This storage would retain surface water from the full extent of the Ouseburn catchment upstream of the A1.
- 3.13 The SUDS ponds being built for the Greenside development off Kingston Park Road may be able to provide some extra storage and reduce the volume of water at Red House Farm.

4.0 The Great Park

- 4.1 Planning for the Great Park started as far back as the late 1980's when it was known as the Northern Development Area. The Unitary Development Plan was being prepared then and the site was included in it. Some detailed drainage investigations showed that surface water management would be important and needed to be thought about.
- 4.2 The development covers over 484 hectares (1200 acres), half of which will be landscaped. It includes 2500 new homes, 80 hectares of commercial/office development, a new school and a local centre.
- 4.3 Outline Planning Permission was granted in 2000 and work started on site at Warkworth Woods (Cell H) and Melbury (Cell I) during 2002. The planning permission needed a Section 106 agreement to be signed by the Council and the Developers. It set out the future responsibilities for the operation and maintenance of the SUDS ponds and public open space.
- 4.4 At present approximately 750 of the 2,500 homes have been completed. Most recently a First School opened near the new Town Centre. In the Business Park the Sage HQ was completed in 2004. The Primary Care Trust have also occupied office space. Further office schemes are proposed in due course.

5 Current position

5.1 Works completed

Fawdon Drainage Catchment

After flooding in the area, NWL completed a £3.5M flood alleviation project in December 2006. The scheme was designed to protect properties from risk of sewer flooding up to a 1 in 40 year storm, On average we would expect one of these storms every 40 years with a slight chance we would actually see

one take place each year.

It is impossible to give a guarantee that flooding will not occur at storm return periods greater than 1 in 40 but the risk will be reduced, as proven in September 2008.

As a result of this scheme, 74 properties have been removed from NWL's DG5 sewer flooding register.

NGP SUDS

The next section will explain what stage the completed SUDS ponds in the Great Park are at now.

Economic Development Area (Cell C)

This SUDS pond is working but EA require a permanent solution to solve problems with leaks from an old culvert.

Warkworth Woods (Cell H)

The SUDS pond to serve this section has been assessed independently and can be adopted once the funding for future maintenance have been resolved.

Melbury (Cell I)

Construction is complete and it is operational. Environment Agency and NWL have some concerns about its design and construction. They have been partially resolved by a level survey of the pond in December 2008. The consortium has recently agreed to carry out a detailed survey of a large area around the pond. If the area of the flood plain has changed because of the development this survey will show that. The ponds can be adopted once this and some maintenance issues have been sorted out.

5.2 **Works in progress**

NGP SUDS

Greenside (Cell G)

Construction work started in the autumn 2009 and any connecting sewers will not be brought into use until the SUDS are adequately completed. EA and NWL will continue to monitor the situation.

Bridges at Three Mile Allotment and White Bridge

The original bridges restricted the flow when there was a flood. They are being improved to reduce the risk flooding happening again in some properties affected in 2008. The Allotment Bridge is completed and the White Bridge project is under construction.

Maintenance work along the Ouseburn

The EA have issued draft maintenance schedules for comment and the City Council has responded. At present the EA want these to be circulated to Council officers but in the future the intention is to open them up to the public for their comment.

SUDS adoption process

We are agreeing with NGP how they will show that individual SUDS have been constructed correctly. We will compare what has been built with design requirements and that workmanship and materials are satisfactory. Before adoption takes place we will also seek to have a maintenance schedule in place that we know will work. It is important for EA and NWL that the City Council adopts these SUDS facilities. How they will be maintained is close to being resolved by the City Council and the Consortium.

Economic Development Area (Cell C) – As built survey and supporting evidence required.

Warkworth Woods (Cell H) – the pond is functioning properly and has been independently checked. The City Council expect to adopt this pond once the negotiations about the revised S106 agreement have been completed and the new agreement signed.

Melbury (Cell I) – Checks in progress to compare the design with the completed works. Some defects to be corrected by NGP.

In November we received the maintenance schedules for the ponds at Warkworth Woods and Melbury. They have been used in the S106 agreement negotiations about the future maintenance costs for these ponds.

Brunton Park

At present the surface water sewers discharge into the Ouseburn. At times of high water levels the outfalls are drowned and water backs up resulting in flooding in various ways.

During the storms in July 2009, pumps were deployed by NCC and NWL, to reduce the risk of property flooding.

To date NWL have currently undertaken an extensive study of the area concerned and are working with NCC and the EA in order to identify any possible flood alleviation scheme.

5.3 Future

DEFRA Property Level Flood Protection

The City Council has been granted funds under DEFRA's Property Level Flood Protection Grants. The City Council will arrange surveys in some properties east of the Great North Road. If residents wish flood protection items can be fitted to their properties.

A public meeting was held in February and surveys will be carried out on properties highlighted as being at risk of flooding. Each household will receive recommendations about the type of protection they could have fitted. This work will start in March and be completed by the end of September 2010.

Surface Water Management Plan/ Water Cycle Study

This is being prepared as a joint exercise with Gateshead Council. It will be a source of information to go into the Core Strategies for the planning of future developments across the City. Of particular interest to the Ouseburn Catchment is that the SWMP will highlight the need for developers to consider the impact of their development on flood risk and to take appropriate steps to manage that risk.

The complimentary Water Cycle Study looks closely at water use from the reservoir to discharge into rivers or treatment works.

Flood and Water Management Bill

This bill would bring a leadership role to local authorities, particularly opening up how major stakeholders, including the City Council, the EA and NWL manage our important infrastructure.

Assent is still possible before Parliament is dissolved for the General Election. We shall have to wait for the next Government's proposals on this issue which the Pitt Report highlighted as needing modernisation.

Climate Change

EA have begun to consider the effects of climate change on their design standards and the management of main rivers. Some elements of the Climate Change Agenda have already been considered in the design of the SUDS ponds.

Urban Creep

Residents need to understand that hard surfaces such as extension roofs, patios and hardstandings direct more rain water more quickly into the drains. This increases the risk of flooding elsewhere.

Residents need to be encouraged to put in place more sustainable forms of drainage such as permeable paving on driveways. Since October 2008 it has been necessary to obtain planning approval for impermeable driveways of more than 5 square metres (6 square yards).

We have estimated that the rain water from 8 paved gardens, driveways or patios is comparable to the controlled run-off from one hectare of the Great Park Development via the SUDS ponds.

5.4 **Moving Forward**

The Flood and Water Management Bill will require the various agencies to work in partnership; we will build on existing arrangements.

Targeted investment is required to deal with schemes to manage the run-off from the whole catchment

The City Council, Environment Agency and Northumbrian Water are now co-operating more closely than before. Our communication with residents has improved as a result. We also believe that this will help provide a consistent approach to NGP when we are resolving issues about surface water management.

6. **Reasons for the decision**

- 6.1 The recommendation is that this report is received by the Ward Committee for information.

7. **What happens next**

- 7.1 Continue to give regular updates to the Advisory and Ward committees either verbally or by report as requested.

8. **Background papers**

Unitary Development Plan /Local Development Framework

Draft Flood and Water Management Bill

Making Space for Water - Urban flood risk & integrated drainage (HA2), IUD pilot summary report, June 2008

9. **Contact officers**

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Summary of Works in Ouseburn Catchment

March 2010

Location	Agency	Completion date	Comment
Completed			
Fawdon	Northumbrian Water	2006	£3.5M investment in improvement to drainage network. Reduced flooding in properties up to 1 in 40 year flood.
In progress			
S106 Agreement	City Council	To be confirmed	Discussions nearing completion
Economic Development Area Suds pond (Cell C)	City Council/ Environment Agency/ Northumbrian Water	To be confirmed	Adoption once evidence provided by Consortium
Greenside Suds pond (Cell G)	City Council/ Environment Agency/ Northumbrian Water		Adoption once evidence provided by Consortium
Warkworth Woods Suds pond (Cell H)	City Council/ Environment Agency/ Northumbrian Water		Adoption once evidence provided by Consortium
Melbury Suds pond (Cell I)	City Council/ Environment Agency/ Northumbrian Water		Adoption once evidence provided by Consortium
Three Mile Allotment Bridge	City Council/ Environment Agency	December 2009	Completed
White Bridge	City Council/ Environment Agency	Spring 2010	Started on site, expected completion end March 2010
Maintenance of Main River	Environment Agency	On-going	Work between A1 and Three Mile Bridge substantially completed. Maintenance schedule for 2010-11 under discussion with Environment Agency
Highways Agency			
HA asked to use SUDS next to A1	Highways Agency		Investigation by HA started

Glossary

Catchment	The area of land surrounding a lake or river that collects the rainwater.
DEFRA	Department of Environment Food and Rural Affairs. The Government office that the Environment Agency are responsible to.
EA	Environment Agency, they have responsibilities to maintain rivers and to build and maintain flood defences.
NWL	Northumbrian Water, the local water company who look after sewers and drinking water supplies.
NGP	Newcastle Great Park, the consortium responsible for the development.
Section 106 Agreement	An agreement between the Council and the Developer that sets out responsibilities for making the development acceptable. It includes arrangements for funding and maintaining the development, including the SUDS ponds.
Sustainable Urban Drainage Systems	<p>These are better known as SUDS. They include different ways of managing rainwater to</p> <ul style="list-style-type: none"> Reduce damage from flooding; Improve water quality; Protect and improve the environment; Protect health and safety; and Get the best use from the sewer system.

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