



WEST OXFORDSHIRE
DISTRICT COUNCIL

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Parish Flood Report: Ducklington

November 2008



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1.0 INTRODUCTION

On the 20th July 2007 large parts of the South of England were subjected to intensive storms. The scale and speed of the rainfall was unprecedented and took most communities by surprise causing widespread flooding of highways and property. On this occasion, unlike previous storms / flooding experienced, this impacted on many properties that had never been affected before, due to much of the flooding coming in the form of rain water run off from land.

A swathe of the district was particularly badly affected by the massive storms, which commenced in the morning and subsided in the evening. During the following days further disruption occurred due to rising river levels. At RAF Brize Norton, the records show that over 125 mm (5 inches) of rain fell in 12 hours, and this is a record going back over 100 years. Not only that, but the period from May to July had been the wettest on record since 1903 and meant that the ground was saturated and unable to absorb any more water.

On the 10th October 2007, the District Council's Cabinet considered a report of the Head of Street Scene and approved additional resources in order that a review of the affected areas could be carried out and further reports be prepared for the Council's considerations.

1.1 Purpose of the report

In response to requests from both the Parish and Town Councils and the general public West Oxfordshire District Council has produced a number of reports that identify each individual cause of flooding within the Parish / Town, what work is being carried out by external agencies (EA, Thames water etc); what the potential options are for future mitigation - and who might be best placed to fund such schemes. The reports themselves reflect the series of water systems that all played a part in the flooding experienced in July 2007 and will help all the organisations involved understand the need to sequence their activities.

This report has been prepared by a qualified Engineer in consultation with the key external agencies and seeks to explore the main reason behind why the floods happened in July 2007 and give an overview of the event itself. It will also provide an understanding of the different roles and levels of responsibility for the agencies involved.

This report should be used to make sure that all the agencies involved with flood prevention – like the Environment Agency, Thames Water, Oxfordshire County Council, Town / Parish Councils and private land owners – work in true partnership for the good of everyone in the local community.

A key outcome of the reports is that residents are given a broad overview of the complex linkages between the different organisations involved and also the range of options available.

1.2 Roles and responsibilities

One of West Oxfordshire District Councils key ongoing roles is to continue to lobby National agencies / Government on behalf of the residents and businesses of the district to secure funding and/or additional resources to assist with flood prevention and other relevant activities. The Council will also work closely with other agencies and organisation in order to highlight the local issues and actions identified in the report.

The legal responsibility for dealing with flooding lies with different agencies and is complex, so below is a simplified summary.

Environment Agency (EA) – permissive powers¹ for main rivers

Oxfordshire County Council (OCC) – Responsible for adopted highways and highway drainage.

Thames Water (TW) – Responsible for adopted foul and surface water sewers.

West Oxfordshire District Council (WODC) – duties as a riparian² land owner, and permissive powers¹ under Land Drainage Act 1991, Public Health Act 1936, Highways Act 1980 and Environmental Protection Act 1990.

Private land owners - duties as a riparian land owner.

1.3 Consultation and consent

The key organisations mentioned above are currently carrying out their own investigations, but operate independently of each other, have different methods of prioritisation and different funding criteria. The District Council has consulted with these agencies together with Parish Councils, Town Councils and individual property owners in order to prepare this report.

It is recognised that the majority of the options proposed in this report require further investigations / feasibility studies and / or consultation before they are carried out. Therefore these options may not be appropriate in every case when full costings, environmental, landscaping, biodiversity, built environment and historic factors are fully considered.

When considering protection against future flooding, it must be emphasised that the risk and impact of flooding can be mitigated against but in some cases not fully removed.

1.4 Response to this report

The options section of this report highlights the potential areas of work / activities under the responsible agency, for example the Environment Agency, West Oxfordshire District Council etc. If you have any specific questions relating to these activities please contact the relevant agency using the contact details provided at the top of the chart.

If you have any general questions please contact your Parish / Town Council who have been a key contributor to the production of the report and have agreed to act as the first point of contact.

The Council is also planning to hold a series of ‘road shows’ in the Parish areas where representatives from all the relevant areas will be available to answer any questions local residents have as well as provide more information on ways residents may help themselves.

¹ Permissive powers are when an organisation may choose whether or not to exercise their powers. I.e. they are NOT under a duty. In making this choice account must be taken of any factors required by the legislation, plus for example how urgent, how necessary they are, cost, likely result, etc

² Riparian owners are responsible for the maintenance of any watercourse within or adjacent to the boundaries of their property.
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1.5 Legal

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2.0 THE DISTRICT COUNCIL'S ACHIEVEMENTS OVER THE PAST 12 MONTHS

Flood Grants

- 4 WODC Flood Grants totalling £1000 given out.

Reports

- WODC Parish Flood Report for Ducklington completed in June 2008.

Actions from the Council's Interim Report published in January 2008

- The table below provides a summary of some of the completed actions identified in the report

Bronze command procedure to be updated to recognise the need for ensuring shift rotas are in place in the early stages of an emergency
Consider producing a revised warning system that identifies a higher category of risk that is only issued in exceptional circumstances
The emergency plan specifically addresses the need to keep in regular contact with elected members
That the Emergency Plan recognises the role the elected members can play in emergency and recovery situations
That in future emergency situations District Councils ensure that they have a representative present at Silver Command from the start of the emergency to act as a conduit for information between Silver Command and the District Councils
The council should encourage all residents residing in the flood plain and in areas at risk of flooding to sign up to the EA Flood Alert system.
Provide clear information to residents and businesses about what type of waste we can collect and how it will be collected
Explanations to residents of our need for bulky waste to be placed on the roadside for collection
Commence a review of the mapping of the many thousands of privately owned ditches and culverts, and ensure they are kept clear and well maintained in accordance with the new policy (2 TOR 3)
Lobby central government for a single agency to take control of all land drainage issues
WODC continues to act in a coordination capacity with key external agencies
Continue to liaise with EA to ensure that procedures relating to planning consultations are robust. Seminar being arranged to take place early in 2008 to progress this
Progress the Strategic Flood Risk Assessment
Consider producing a revised warning system that identifies a higher category of risk that is only issued in exceptional circumstances
Approaches to be made to the EA and Metrological Office with regard to improving their predictive capability
Lobby central government for a single agency to take control of all land drainage issues
WODC continues to act in a coordination capacity with key external agencies
During emergency events, have an external media person (BBC) in Bronze Command
Purchase digital TVs to assist with reviewing weather, local and national news to assist emergency management

3.0 EXECUTIVE SUMMARY

3.1 General

Following the flooding events of July 2007, West Oxfordshire District Council (WODC) has responded to requests from both Town and Parish Councils to aid the coordination of all the agencies and bodies that were undertaking their own investigations into the floods through the production of Parish Flood Reports.

This document is the Parish Flood Report for the village of Ducklington and has been prepared by the Council's Engineering team. It pulls together information from external agencies and individual property owners. It identifies the causes of flooding in Ducklington during July 2007 and potential mitigating solutions.

The report itself is broken down into a number of sections and will include;

- An overview of flooding history in Ducklington and flood related issues raised by residents
- A presentation of the problems and causes of flooding in Ducklington during July 2007.
- A summary of all the flooding issues and potential mitigation options.
- A breakdown of the recommendations for immediate, mid-term and long term actions including the responsibly agency based on the options identified.

The table below provides a summary of some of the main causes of the flooding in Ducklington and the mitigation options that could be applied to alleviate the different flooding problems. More detail is provided regarding the specific locations and the causes of flooding in section 5 of the report.

Source of flooding	Potential mitigation measures
Blocked and poorly designed highway drainage	Replace gullies and unblock connections
Overgrown highway ditches	Clear/ maintain highway drainage ditches and culverts
Vulnerable low-lying properties	Provide perimeter land drainage with on-site tank
From adjacent surcharging surface water sewers	Provide non-return valves to protect surface water sewer connections from surcharging sewers
Surcharging of Colwell Brook	Provide flood protection bund
Blocked culvert passing under A415, connecting to ditch on South side of Standlake road.	

3.2 Survey

3.2.1 Description of area

The Parish of Ducklington is approximately 208 Hectares (514 acres) in size.

A map of the parish is shown in figure 2.

3.2.2 Survey approach

Visual walk-over surveys have been undertaken. Photographs of some of the flood affected areas are shown in Appendix I.

A review of all correspondence, received by the Council about the July 2007 flooding in the Parish of Ducklington has been carried out and incorporated within the findings of the report.

3.2.3 Meetings

Details of key meetings and site visits attended by District Council representatives that are relevant to the flooding of Ducklington in July 2007 are given in the table below;

Date	Main participants and Venue	Description
4/7/07	Site Visit – Laurence King(WODC)	Investigating flooding at Ducklington Mill ditch
28/5/08	Site Visit – Kevin Jack (WODC)	Investigating flooding at Standlake Road
17/6/08	Site Visit - Edmund Strange (Chairman of Ducklington Parish Council), Richard Border, Glyn Leen, Nick Hands (WODC)	Discussions about flooding causes and solutions

The District Council has liaised with the Environment Agency, Oxfordshire County Council and Thames Water. The Environment Agency has carried out visual surveys of the flooded areas affected by the main river.

The District Council has contacted some of the owners of properties that flooded in July 2007.

3.2.4 Application for Grant Aid

The District Council has distributed financial support to the residents of Ducklington in the form of;

- Emergency Flood Relief Grant Aid of £250 per household.

To date the owners of 4 residential properties in the Parish of Ducklington have received Emergency Flood Relief Grant Aid, however it is acknowledged that this is not the total number of properties affected as some owners have been reluctant to claim.

Whilst the Emergency Flood Relief Grant Aid was not paid to industrial and commercial properties, the Council did provide advice and support to local business affected by the flooding on funding available from Business Link and other organisations.

3.2.5 Flooding History

From discussions with local residents it was noted that the Parish of Ducklington has flooded frequently over the previous 50 years.

In addition to the residential flooding of 2007 Wesley-Barrell Furniture and Philip Dennis foods, located off Standlake Road, also flooded.

4.0 PROBLEMS AND CAUSES

4.1 Plans

Appendix 2 contains two plans (Figure 1 and Figure 2).

Figure 1 is a map showing areas in Ducklington where flooding occurred in July 2007.

Figure 2 shows the following:

- **Ducklington Parish boundary**
- **Environment Agency** - main rivers and enmained water courses in the area.
- **Flood Zone 2, January 2008** - 0.1% annual probability of flooding occurring or low to medium risk. Previously referred to as 1:1,000 year flooding.
- **Flood Zone 3, January 2008** - 1% annual probability of flooding occurring or high risk. Previously referred to as 1:100 year flooding

Note – this EA map has been updated to reflect the events of July 2007. All references to flood zones in this report refer to the previous EA flood zone map i.e. pre July 2007.

4.2 Area 1 – No 75 Standlake Road, Wesley-Barrell Furniture and Philip Dennis foods.

The above properties off Standlake Road flooded in July 2007.

Flooding was attributable to either or a combination of the following: (i) Blocked/Insufficient and/or poorly designed highway drainage. (ii) Overgrown/ partiallyblocked highway culvert and drainage ditch opposite the new “Banner” housing site. (iii) Overflowing A415 trunk road highway drainage ditches.

The cause of flooding is the following:

4.2.1 Blocked/Insufficient/Poorly designed Highway Drainage

Flooding occurs outside No 75 Standlake Road due to the gully at the driveway entrance being unable to cope with large volumes of water collecting at the natural low spot. The single gully has insufficient capacity and the gully connection could be blocked. New gullies have now been installed and the road camber changed.

4.2.2 Overgrown Drainage Ditch and Outfall Culvert

Soft blockages, siltation and tree root ingress obstruct the clear flow path along the ditch which drains the highway and outfall culvert opposite the new “Banner Homes” housing development.

4.2.3 Overgrown A415 Drainage Ditches

Soft blockages, siltation and tree root ingress obstruct the clear flow path along the ditches either side of the A415. Flood water spills over the highway boundary into the field to the north which in turn floods Standlake Road to the north. The exit to the culvert which passes under the A415 is buried, where it emerges adjacent to the recreation ground between the A415 and Standlake road. Consequently, surface water from the A415 and its blocked ditches floods the ground and enters the ditch system at Standlake

road. The ditch alongside the SE side of the recreation ground, recently dug by Banner homes need deepening at the culvert exit and the culvert also needs to be jetted through.

4.3 Area 2 – No 16 Curbridge Road.

The above property flooded in July 2007. This was attributable to either or a combination of the following: (i) Highway drainage discharging into this particularly low-lying house. (ii) Surface water unable to discharge into the adjacent surcharging sewer.

The cause of flooding is the following:

4.3.1 Vulnerable low lying properties

No 16 Curbridge Road is particularly low-lying when compared to adjacent properties and the public highway. During peak rain storm events highway drainage discharges down the drive into the property.

4.3.2 Surcharging Sewer

The surface water sewer, which surcharges, prevents storm discharge from the property entering the system.

4.4 Area 3 – Four Pillars Hotel Highway Junction

Two properties flooded in the region of the “Four Pillars” Hotel: No 114 Witney Road and “Eastnor” Ducklington Lane. The flooding was attributable to either of the following: (i) Low elevation in relation to the Public Highway. (ii) Surcharging of Colwell Brook. The town council owned allotments adjacent to the hotel/Lakeside flats have also been affected.

The cause of flooding is the following:

4.4.1 Low lying Property

No 114 Witney Road is particularly low in elevation when compared to adjacent property and the Public Highway. It appears that the adjacent trunk road and primary distributor roads have been built up over the years leaving the much older property in a hollow. During peak rain storm events highway drainage discharges into the property.

4.4.2 Surcharging of Colwell Brook

During peak rain storm events such as July 2007 Colwell Brook surcharges over the adjacent A40 slip road, petrol filling station and “Eastnor” Ducklington Lane. The residential property has no flood protection bunds in place.

4.4.3 Blocked ditch

Surface water run-off from the grassland behind the flats, combined with a culverted surface water system from the flats outfalling into the ditch, has flooded the allotments due to blockages in the ditch. There is also a possibility that at times of high water levels in Emma's Dyke, water flows from the dyke into the ditch and not the other way around, as it should.

5.0 OPTIONS

The following table shows the possible options available for flood alleviation schemes throughout the Parish, and their potential effectiveness, as assessed by the District Council Engineers.

These options will require further detailed investigation along with the agreement of the responsible landowner, identification of budget and a cost benefit analysis to be carried out before they could be implemented.

Some of the options shown are also mutually exclusive, that is if one option is carried out then another will not be necessary, to find if this is the case for an option, please look at the detailed description in the Conclusions and Recommendations Section (6.0).

If you require further information regarding a particular option, please contact the agency that would be responsible for implementation of the proposal, where this has been shown, using the contact information at the top of the column. If no contact details are shown, there may be a private landowner responsible. If this is the case the District Council will ensure that private landowners are made aware of their responsibilities.

Area		1			2	
Flooded Properties & Causes		Three properties flooded – estimated frequency every 5 to 10 years. <u>Primary causes</u> – (i) Blocked/ Insufficient and/or poorly designed highway drainage. (ii) Overgrown/blocked highway drainage ditch and outfall culvert opposite the new “Banner” housing site. (iii) Overflowing A415 trunk road highway drainage ditches.			One property flooded – estimated frequency every 10 to 20 years. <u>Primary Causes</u> – (i) Highway drainage discharging into this particularly low-lying house. (ii) Surface water unable to discharge into the adjacent surcharging sewer.	
Options		1	2	3	1	2
Description of options		Provide double gully outside No75 Standlake road.	Clear ditch and culvert crossings opposite “Banner Homes” housing site.	Clear trunk road highway drainage ditches either side of the A415.	Provide perimeter land drainage to flooded properties with well point pump to on-site storage tank.	Provide a non-return valve on surface water discharge pipe from the property.
Responsible Agencies	EA For queries Tel: 08708 506506					
	OCC For queries Tel: 08453 101111	OCC to do this work.		OCC to do this work.		
	Thames Water For queries Tel: 08459 200800					
	WODC For queries Tel: 01993 861000	WODC to co-ordinate works with this proposal.	WODC to co-ordinate works with this proposal.	WODC to co-ordinate works with this proposal.	WODC to co-ordinate works with this proposal.	WODC to co-ordinate works with this proposal.
	Private/Other Organisations		Riparian owners to carry out this work		Work to be undertaken and funded by property owner	Work to be done & funded by property owner
Effectiveness/ Effects on adjacent land					Requires on site water storage.	Prevents water backing up into property.
Cost		Up to £5K	Up to £5K	Up to £5K	£5k to £20k	Up to £5K

Area		3		
Flooded Properties & Causes		Two properties flooded – estimated frequency every 1 to 5 years. <u>Primary causes</u> – : (i) Low elevation in relation to the Public Highway. (ii) Surcharging of Colwell Brook.		
Options		1	2	3
Description of options		Provide perimeter land drainage to No's 110, 112 and 114 Standlake Road flooded properties with well point pump to on-site storage tank.	Provide "Aco" type drainage channel at interface between driveways and carriageway in Standlake Road.	Provide flood protection bund south of Colwell Brook.
Responsible Agencies	EA For queries Tel: 08708 506506			Work to be undertaken by the EA to protect properties flooding south of Colwell Brook
	OCC For queries Tel: 08453 101111			
	Thames Water For queries Tel: 08459 200800			
	WODC For queries Tel: 01993 861000	WODC to co-ordinate works with this proposal.	WODC to co-ordinate works with this proposal.	WODC to co-ordinate works with this proposal.
	Private/Other Organisations	Work to be undertaken and funded by property owner	Work to be undertaken and funded by property owner	
Effectiveness/ Effects on adjacent land		Requires land to re-build gullies south of Standlake Road.		
Cost		£5k to £20k	Up to £5K	£20k to £50k

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Area 1 – No 75 Standlake Road, Wesley-Barrell Furniture and Philip Dennis foods.

6.1.1 Maintenance

The following on-going maintenance is recommended:

- Action 1 – OCC to provide double gully outside No75 Standlake Road & replace poorly designed gullies opposite “Banner” housing site.
- Action 2 - OCC to clear ditch and culvert crossings opposite “Banner Homes” housing site.
- Action 3 – OCC to clear trunk road highway drainage ditches either side of the A415.

6.2 Area 2 – Curbridge Road.

6.2.1 Flood Defence Improvement Schemes

The following flood defence improvement schemes are recommended:

Immediate (under 1 year)

- Action 2 – Property owner to Provide a non-return valve on surface water discharge pipe from the affected property

Mid-Term (under 1 -2 years)

- Action 1 – Property owner to Provide perimeter land drainage with well point pump to on-site storage tank.

6.3 Area 3 – Four Pillars Hotel Highway Junction and Town Council allotments.

6.3.1 Flood Defence Improvement Schemes

The following flood defence improvement schemes are recommended:

Immediate (under 1 year)

- Action 2 – Property owner to Provide “ Aco “ type drainage channel at interface between driveways and carriageway in Standlake Road.
- Riparian owner to clear ditch between flats and allotments on a regular basis.

Mid-Term (under 1 -2 years)

- Action 3 – EA to Provide flood protection bund south of Colwell Brook and to create a weir between ditch at Lakeside apartments and Emmas Dyke.

Appendix I: Photographs



Area 1- Standlake Road



Area 1- Poorly constructed gully



Area 1- Banner Homes Building site



Area 1- Culvert crossing opposite building site



Area 1- No Standlake Road



Area 2 - Curbridge Road



Area 3 – blocked ditch behind Lakeside flats



Area 3 – dam constructed at Emmas Dyke



Area 3 – ditch obstruction behind flats



Area 3 – allotments adjacent to ditch



Area 3 – stagnant water in ditch behind flats



Area 3 – culvert at hotel boundary