

Surface Water Problems in and around the village of Ducklington

Assessment and Action plan

April 2013

DRAFT

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Summary

Ducklington Parish Council has been aware of the problems caused in the parish by the accumulation of surface water from the A415 and associated drainage issues. Residents are concerned and have contacted the Parish Council for resolution. The problems caused by the surface water are real and affect the people of Ducklington on a regular basis when there is heavy and sustained rainfall.

Various attempts have been made to resolve the problems but have had limited success. The Parish Council is agreed that unless all parties involved are aware of their responsibilities and co-ordinate their actions there will be little chance of permanent success in the future.

There are 3 areas affected and mentioned in more detail in this report

- The junction of Aston road with the A415
- The ditch from the junction with Aston road and the A415 past the Parish Council pavilion and the school through to the river
- The ditch from the A415 along Standlake Road past Fritillary Mews and through to the river

This is causing severe problems during periods of sustained heavy rain. Namely

- Reduction of possible vehicle entrances to the village from 3 to 1. This puts pressure on the only remaining entrance to the village and is of concern to anyone returning home or anyone seeking attention from the emergency services.
- With water completely covering the A415 in an unrestricted (NSL) section there is a severe risk of accidents.
- Flooding of the Parish Council pavilion and subsequent problems with obtaining insurance.
- Although the front row of houses on Fritillary Mews have not been flooded, the residents are concerned that the water gets to their front doors and cuts off access to their homes.
- Some properties on Standlake road have been flooded in the past – residents are concerned that the water gets to their driveway and cuts off access to their property.
- The foul water drainage is practically at surface level along Standlake road (and therefore pumped). Surface water flooding causes the foul drains to also flood and therefore contaminates the local area.

It is the view of the Parish Council that the problems outlined above have identifiable and resolvable causes and that with active resolution and ongoing management these problems can be averted.

This report is published by Ducklington Parish Council with investigative assistance from West Oxfordshire District Council and addresses the three main areas of flooding and will outline the Parish Council's recommendations and action plan.

Detailed Assessments of the areas affected

The assessments were made following observations, correspondence from parishioners and the experiences of Parish Councillors.

An inspection of all of the areas was made on 8th March 2013 by Councillors Peter Almgill and Richard Border of Ducklington Parish Council and Kevin Jack a Senior Engineer from West Oxfordshire District Council.

Area 1 (The junction of Aston road with the A415)

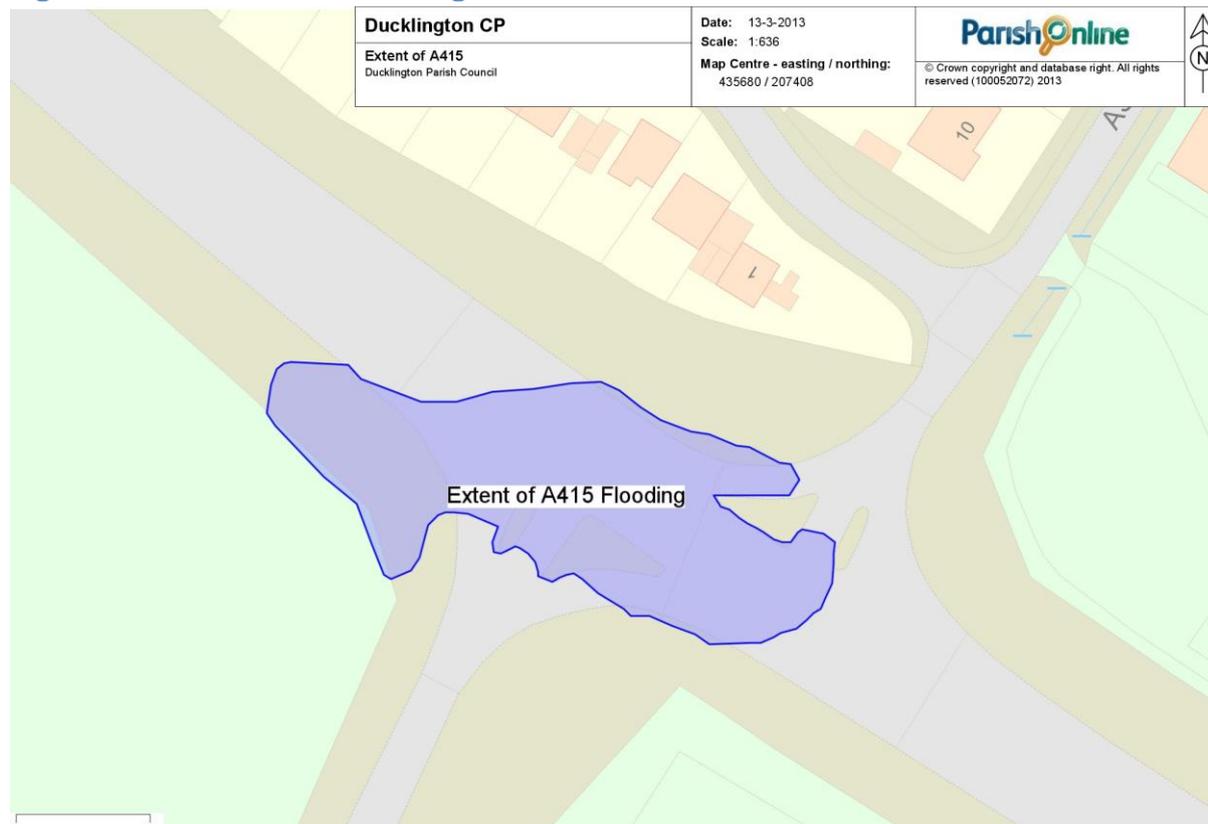
In this area the A415 is wide and flat. The water comes from the south side (i.e the north bound carriageway) and crosses the road heading to the lowest point at the junction with Aston road. The depth varies across the road from approx 10-20cm at Aston Road to 1cm in the middle of the A415.

The safety concerns are that with a long and wide road it is difficult to see the water which is present for over 30m of the length of the road at a shallow depth. This section of the A415 is subject to NSL (i.e. up to 60mph) and at these speeds aquaplaning and the resultant accident(s) becomes a real risk.

Empirical testing shows that “in general, cars aquaplane at speeds above 53 mph (72 km/h), where water ponds to a depth of at least 1/10 of an inch (2.5 mm) over a distance of 30 feet (9 meters) or more.” (Badger cited in Wikipedia)

The depth of the surface water is sufficient at the exit slip from the A415 to Aston Road to prevent access to the village. At this depth it is not possible to see the submerged kerbs, verge and ditches. Vehicles attempting to enter the village do so via pulling into the middle of the A415 and entering via the exit slip. Given the water on the A415 this is considered dangerous by the Parish Council.

Figure 1 – Extent of A415 flooding



Area 2 (The ditch from the junction with Aston road and the A415 past the Parish Council pavilion and the school through to the river)

The surface water mentioned in the detailed assessment of area 1 flows down a ditch on the Witney bound carriageway crossing under the road before the Pavilion. There it crosses the highway verge and under another narrow access roadway before coming alongside the pavilion and the school. The ditch here is wide, however it narrows and shallows significantly at the boundary with the school.

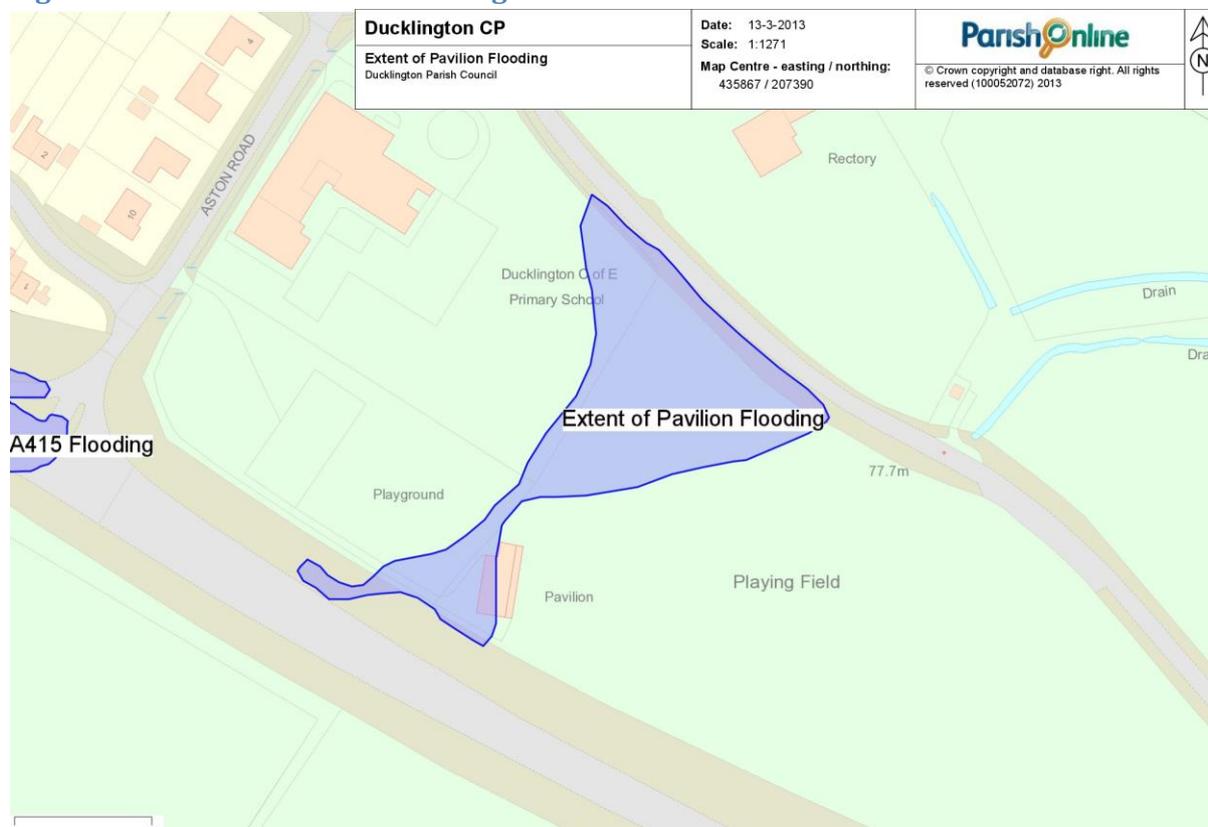
The narrowing and shallowing causes the surface water to well up and spill out around the pavilion. In previous years this has caused significant damage to the pavilion and sports in the parish. The surface water also spills out into the sports field before re-joining the ditch at the gate to Standlake road closest to the Old Rectory. Further up stream this ditch splits and one leg passes up past the school along Standlake Road. This leg of the ditch spills out into the school playing field and front car-park.

The ditch from the pavilion to where it crosses under Standlake road was found to have a high level of littering and fly-tipping. Many tyres, loam bags and drinks bottles were found to be obstructing the water flow in many locations along the length of the ditch.

Also at this location after any heavy rain the virtual footpath at the junction of Standlake Road with the Village Hall access road floods putting pedestrian, often accompanied by young children, at risk of injury by collision with vehicles at this bend.

The ditch then crosses under Standlake Road and makes its way to the river through a series of interconnecting drainage ditches. These were not inspected in the production of this report.

Figure 2 – Extent of Pavilion flooding



Area 3 (The ditch from the A415 along Standlake Road past Fritillary Mews and through to the river)

The surface water at issue here also comes from ditches draining the A415 and land around. Here the water comes through a ditch in the highways verge and runs along the bottom of the sports field. This section has recently been cleared of vegetation. It abuts Standlake Road and where it is joined by a short length of ditch that starts with a headwall from the outflow of a road gully adjacent to number 75 Standlake Road. The ditch at the headwall was silted up so as to obscure a view of the pipe. During significant rainfall water passes back up this gully and spills out into Standlake Road putting the immediate properties at risk.

The ditch travels along Standlake Road in front of Fritillary Mews (numbers 1 to 10). There is an earth bund and there are non return valves on the roadside gullies. However, there are some pipes through the bund with no non-return valves rendering the bund useless. The construction of the gullies is of poor quality, particularly the kerb surround that protects the bund. It was also noted that the bund was not high enough in the middle opposite number 5 Fritillary Mews.

The ditch then meets a headwall as it passes underneath Standlake road. This under road culvert was noted to be a significantly smaller diameter than those upstream. During significant rainfall the

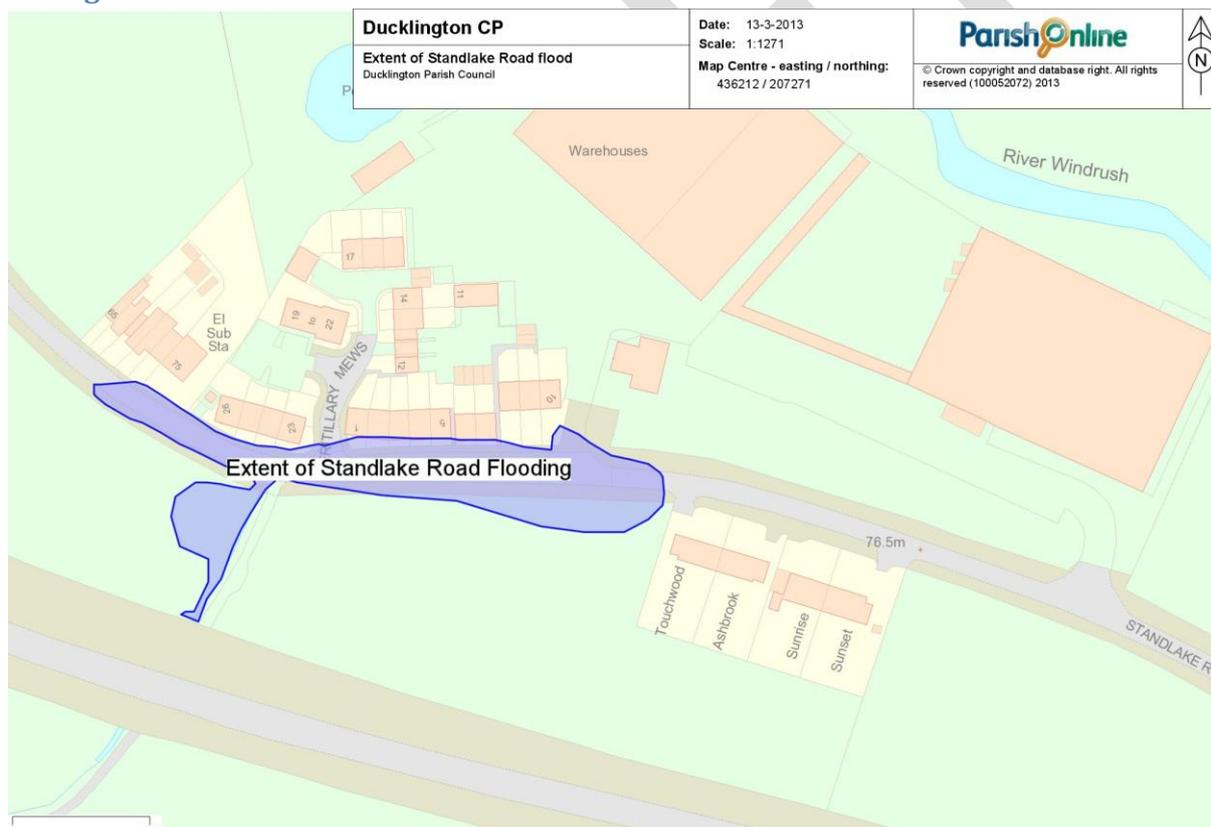
level of water in front of this culvert rises significantly and causes the non-return valves to close. This in turn forces the water out of the gully in front of number 75 Standlake Road. This combines with normal surface run-off and causes a pool of surface water to pool on Standlake Road on the other side of the protective bund.

The flooding in Standlake Road is often sufficiently serious as to render it impassable and put the properties adjacent at risk.

It was also noted that at this end of the village the foul water drains are very shallow and have to be pumped at a Thames Water pumping station just up from the affected area. The old foul water drainage runs alongside the surface water drainage ditch and some of the manhole and inspection covers needed attention to prevent cross contamination.

The ditch then travels in front of the Philip Dennis facility, passing under the entrance road before turning alongside the facility to join the river. It was noted that the section of ditch alongside the Philip Dennis building has recently been cleared of vegetation.

Figure 3 - The ditch from the A415 along Standlake Road past Fritillary Mews and through to the river



Conclusion of Inspection

The inspection of the ditches and areas involved gave the Parish Council confidence that the drainage system ought to be sufficient to carry the surface water away safely to the river. It was noted that the ditches were in varying states of repair and function along their length. It was also

apparent that along sections, efforts had been made to maintain the ditches with varying degrees of success.

The quantity of litter and fly-tipping was of concern because of environmental damage that was being caused as well as the obstruction to drainage. This was of particular concern around the pavilion and school boundary.

It was also apparent that there were bottlenecks along the route that the surface water takes. These were either narrowing and shallowing or were through narrow culverts under the roads. The observed flooding was often found to be on one side of these bottlenecks.

The Parish Council believes that if these bottlenecks can be removed and through a period of remedial works to enhance the flow and protect roads and properties it will be possible to significantly reduce the risk of the incidents re-occurring at these three locations in the future.

It is also apparent that the ditches pass through and become the responsibility of many landowners and that without their co-operation in discharging their maintenance responsibilities, the situation will worsen and re-occur.

Recommendations

Ducklington Parish Council recommends that this plan be adopted by all the local authorities to resolve the issues mentioned. The Parish Council resolves that West Oxfordshire District Council be asked to take responsibility for enforcement through their ongoing work and responsibilities under the Land and Drainage Act 1991 (WODC, 2005).

The action plan below should be put into place and the work noted completed. This should include the identification of the riparian landowners and their agreement to complete the required works.

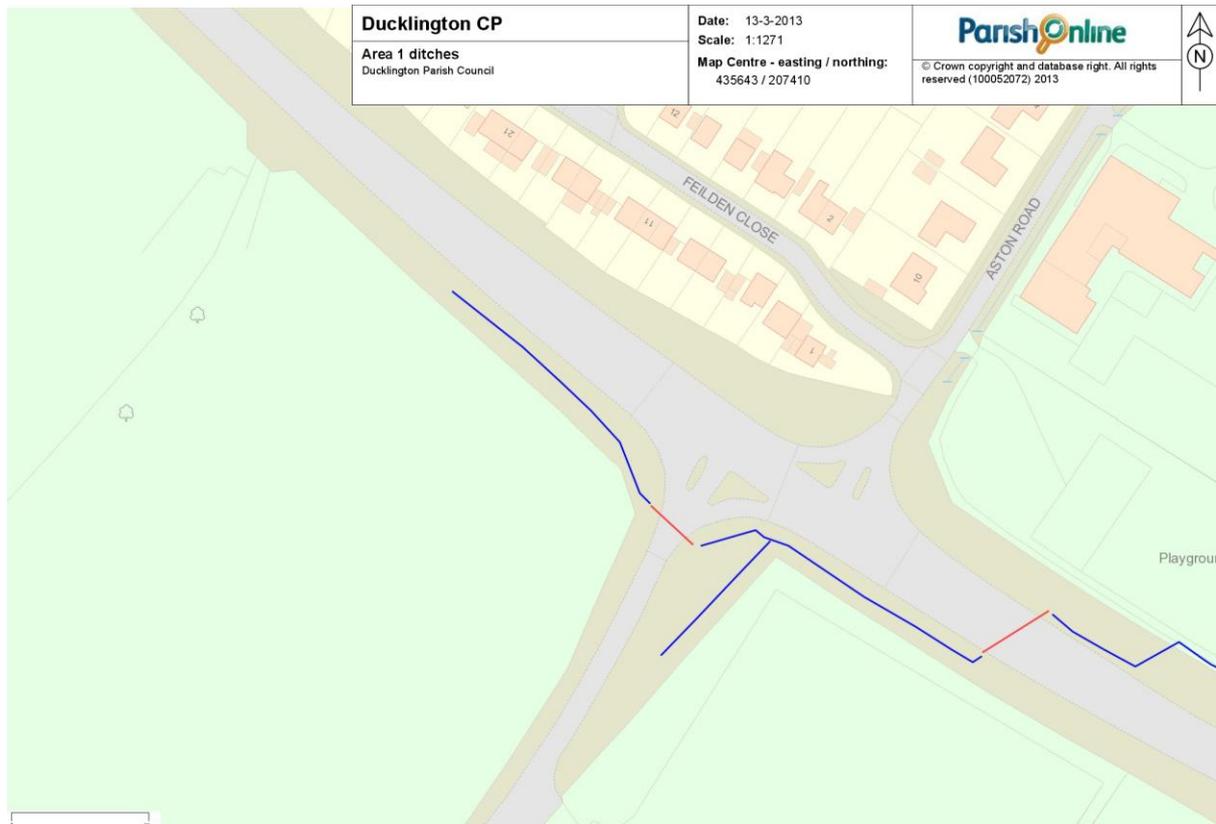
In order to complete the works within a co-ordinated schedule of works, riparian landowners should be offered the alternative of the District Council or Parish Council completing the works on their behalf but at their expense.

Action Plan

The action plan below lists the individual items that were identified as requiring completion in order to reduce the risk of surface water flooding re-occurring.

Area 1

Area 1 ditch course



1. Create grip gullies to allow surface water from the A415 to flow into adjacent ditches. In particular at the junction with Aston Road (Witney side)
2. Clear and deepen the ditches on the Hardwick side of the junction with Aston Road
3. Inspect the diameter of the under road culvert and take appropriate action
4. Install a grip gully at the junction of A415 slip road to Aston

Area 2

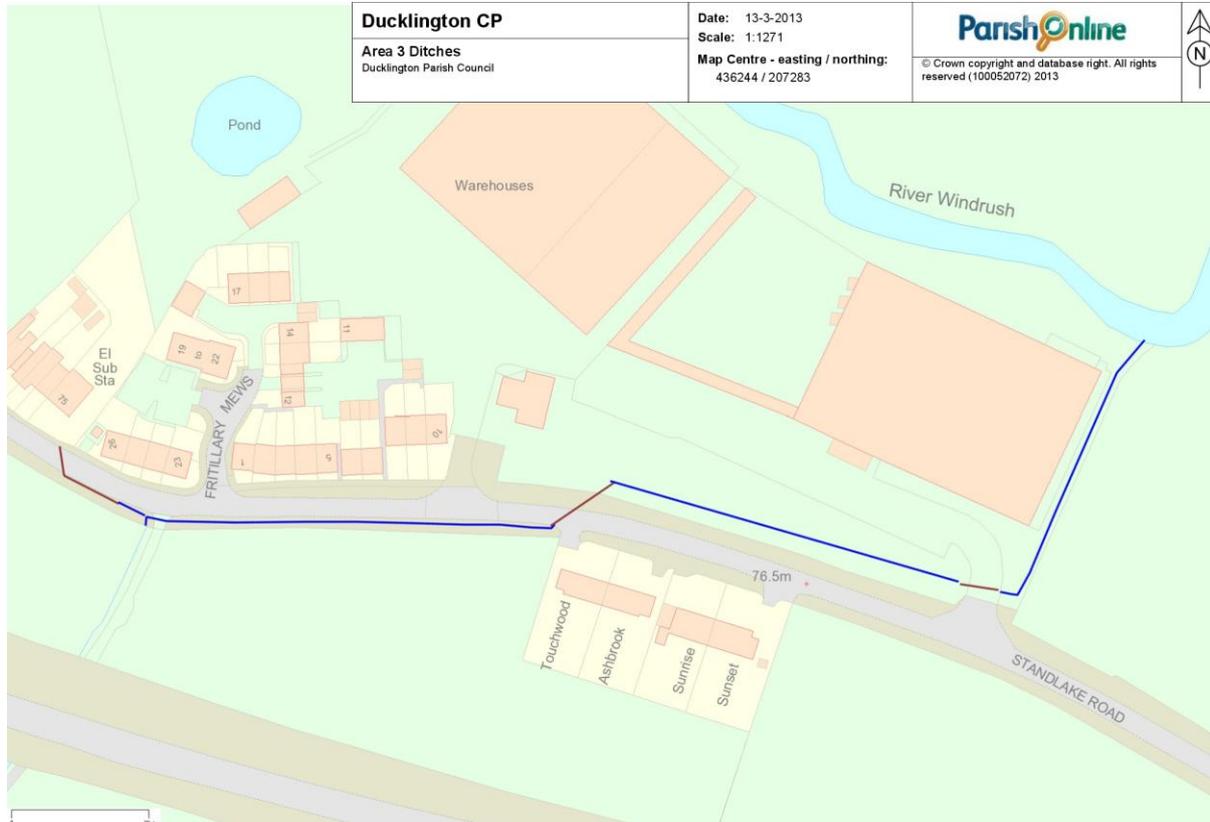
Area 2 ditch course



1. Empty the ditches of fly-tipping and littering on a regular basis
2. Deepen the ditch from the pavilion through to the junction with Standlake Road
3. Inspect the path of the ditch from Standlake Road through to the river

Area 3

Area 3 ditch course



1. Dig the ditch at the headwall to the gully on Standlake Road
2. Fit a non-return valve to this gully headwall
3. Clear the ditch from the culvert under the A415 through to the culvert under Standlake Road
4. Build up the protective bund opposite number 5 Fritillary Mews
5. Significantly enhance the diameter of the culvert under Standlake Road
6. Repair the roadside gullies opposite Fritillary Mews
7. Stop-up the pipes through the bund

Ongoing Management Plan

The importance of the ongoing management plan cannot be underestimated. A more detailed management plan should be created in conjunction with West Oxfordshire District Council and the riparian landowners following the immediate works required above. It should be supportive of the following;

1. The plan should list all land owners and note their responsibilities
2. Land owners should inspect the ditches / culverts and gullies within their responsibility at least annually

3. Ducklington Parish Council should inspect the whole system (all three areas) annually and notify landowners of any work required.
4. The plan should be co-ordinated and enforced by West Oxfordshire District Council
5. A multi authority bi-annual inspection and review should be completed with all involved parties.

References

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Version history

| Version | Date | Author | Changes |
|---------|---------------|--------------------------------|----------------------------------|
| 0.1 | 13 March 2013 | Peter Almgill | Initial draft |
| 0.2 | 15 March 2013 | Peter Almgill / Richard Border | Drafting and action plan updates |
| 1.0 | 3 April 2013 | Ducklington Parish Council | Adopted version |

Document location

This report and action plan is published by Ducklington Parish Council and the most recent version is available on the Council's website <http://www.ducklingtonparishcouncil.gov.uk>

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