

05 May 2015

# Buckinghamshire County Council

## Flood Investigation Report

Medmenham

January & February 2014



05 May 2015

## Revision Schedule

**Buckinghamshire County council**  
**Flood Investigation Report**

<b>Rev</b>	<b>Date</b>	<b>Details</b>	<b>Author</b>	<b>Checked and Approved by</b>
<b>1</b>	19/09/2014	Version 1 - draft	Karen Fisher	
<b>2</b>	29/12/2014	Version 2 - draft	Karen Fisher	
<b>3</b>	30/01/2015	Version 3 - Final	Karen Fisher	

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## Executive Summary

This report has been produced by Buckinghamshire County Council (BCC) to investigate the flooding that occurred in Medmenham between 5<sup>th</sup> and 15<sup>th</sup> January 2014 and between the 2<sup>nd</sup> and 22<sup>nd</sup> February 2014. The report provides details of the event and makes recommendations for Risk Management Authorities (RMAs) to undertake to reduce future flood risk.

A Section 19 Investigation is a statutory requirement for Lead Local Flood Authorities (LLFA) under the Flood and Water Management Act (FWMA, 2010). On becoming aware of a flood in its area, the LLFA must, to the extent that it considers it necessary or appropriate, investigate:

- Which RMAs have relevant flood risk management functions; and
- Whether each of those RMAs has exercised, or is proposing to exercise, those functions in response to the flood.

It was deemed necessary to produce this report as these flood events in January and February 2014 exceeded BCCs criteria for carrying out a Section 19 Investigation.

The aim of the Section 19 Investigation is to give an explanation of what happened in the flood event and what were the RMAs responsibilities during the event. The recommendations are there to help the RMAs learn lessons from the event and to move forward with the management of flood risk in the future.

The flood events in January and February 2014 occurred after a prolonged period of above average rainfall which caused the surrounding land to become saturated. The River Thames was flowing very high for a long period of time with peaks in January and February 2014. These high main river levels came up the main route, Ferry Lane, and flooded the roads and houses in the village. The highways and field drains were unable to discharge due to the high levels in the River Thames.

Since the flooding event the Risk Management Authorities have met with the parish council and residents of the village to understand the sequence of events during the flooding, to hear the concerns of the residents and to consider what actions can be undertaken going forward. Buckinghamshire County Council has undertaken a review of the drainage assets to understand where the water from fields/highway drains discharge.

Buckinghamshire County Council are indebted to the residents of Medmenham and in particular Kieran Millard and Penny McLeish for their very comprehensive community report of flooding (Millar and McLeish, 2014) which has been invaluable in providing

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information for this report.

## 1. Introduction

### 1.1 Background to investigation

BCC as the LLFA has a responsibility to record and report flood incidents as detailed within Section 19 of the FWMA 2010:

#### **Section 19**

- (1) On becoming aware of a flood in its areas, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate-
  - (a) which risk management authorities have relevant flood risk management functions, and
  - (b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.
- (2) Where an authority carries out an investigation under subsection (1) it must-
  - (a) publish the results of its investigation, and
  - (b) notify any relevant risk management authorities.

BCC has established criteria for section 19 flood investigations which can be found in the appendix.

It was deemed necessary to complete an investigation into the flood incident in Medmenham because it meets the following threshold:

- internal flooding of five or more properties or two or more business premises within an area of 1km<sup>2</sup>.

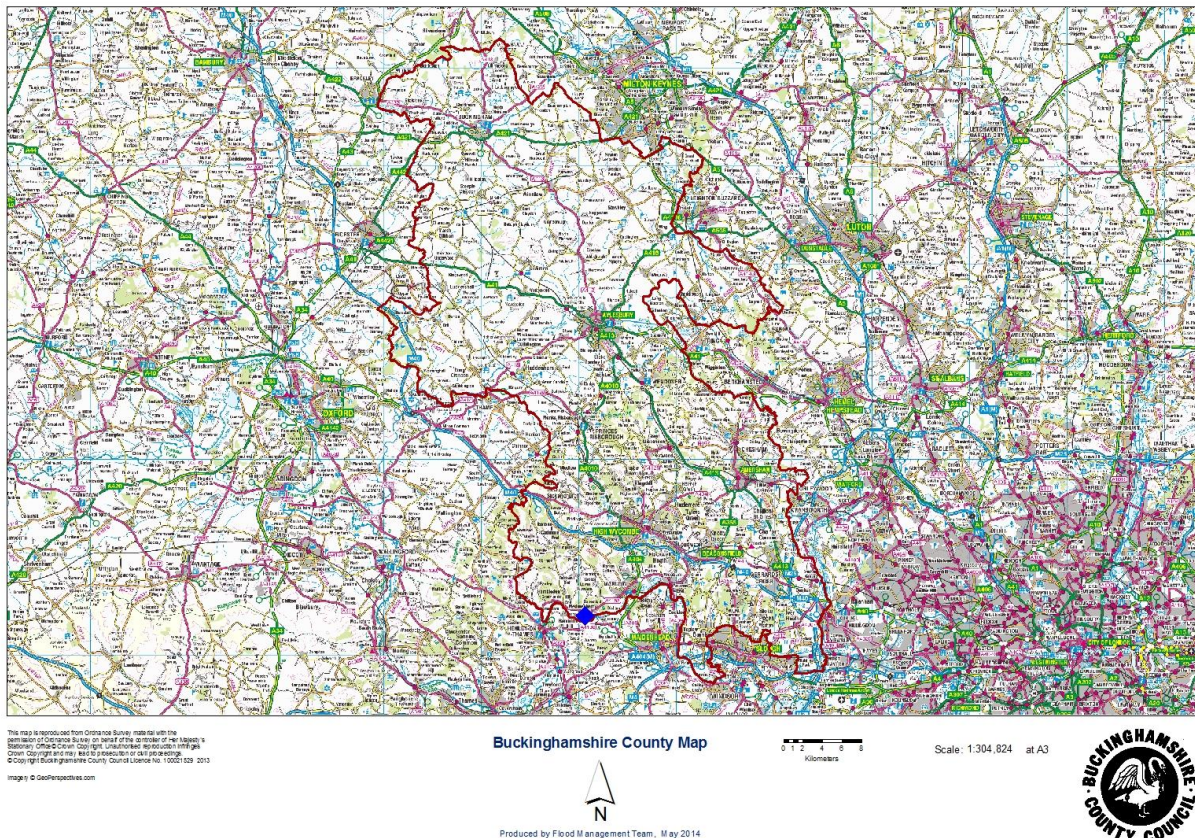


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## 1.2 Site Location

Medmenham is located in South Buckinghamshire next to the River Thames just off the A4155 between Henley on Thames and Marlow. There is one main route, Ferry Lane, from the A4155 down to through the village to the River Thames. The River Thames at Medmenham forms the County Boundary. Figure 1a shows the location of Medmenham in the county of Buckinghamshire.

Figure 1a shows the extent of the main village along Ferry Lane and extending north of the and east along the A4155. The majority of houses are along Ferry Lane and there are large extents of low-lying open areas and fields with a network of drainage ditches behind the houses and alongside the River Thames. The former Water Research Station is a derelict site on the south west side of Ferry Lane.

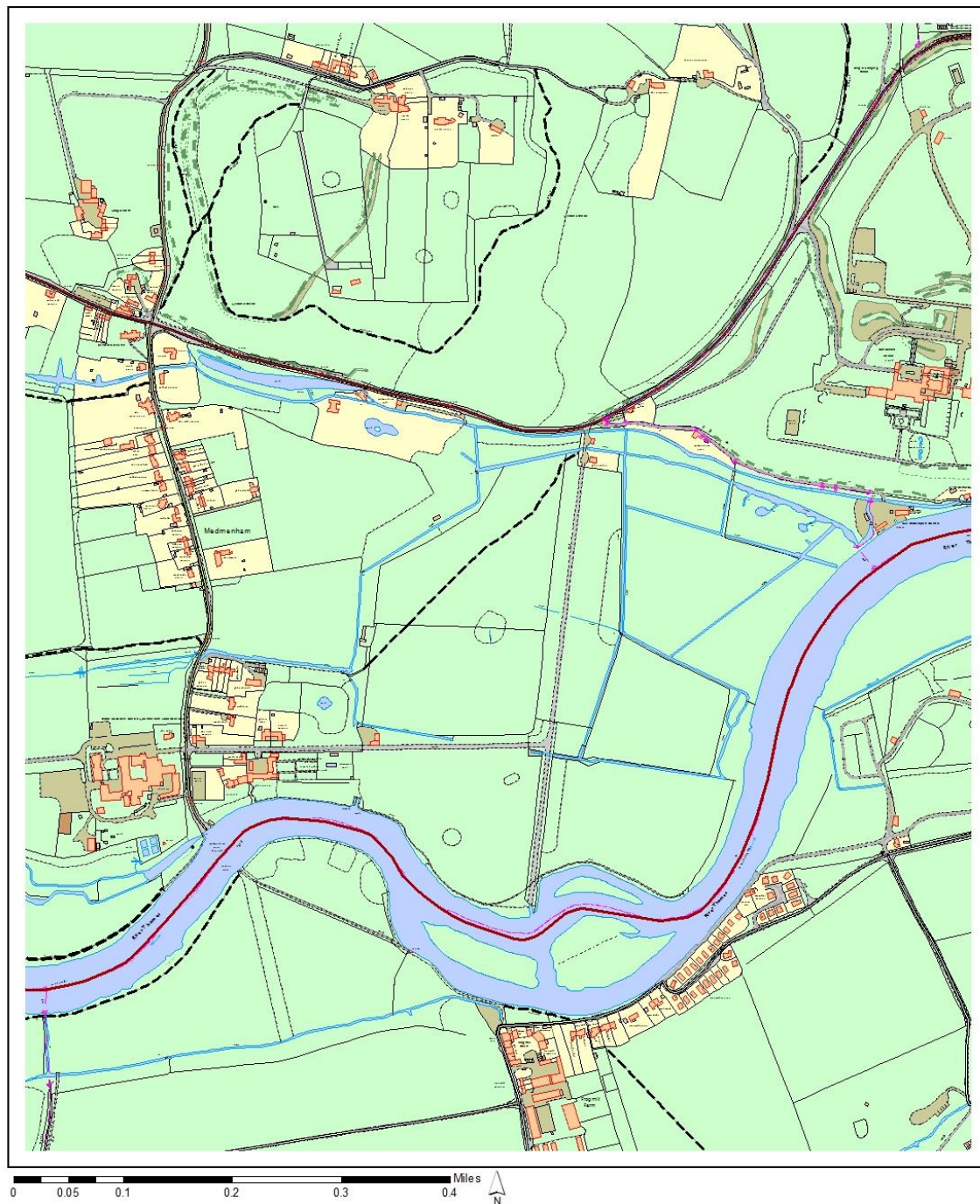


**Figure 1a Location map of Medmenham at County level (Ordnance Survey License 100021529 2014)**





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Buckinghamshire County Map  
Produced by Flood Management Team, September 2014  
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**Figure 1b Location map of Medmenham at local level (Ordnance Survey License 100021529 2014)**



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### **1.3 River network and drainage system**

The river network in the area of Medmenham is dominated by the River Thames to the south of the village and Ferry Lane. There are a network of ditches which cross the land especially in the fields and open areas to the east of Ferry Lane although some of the ditches come from the west of Ferry Lane and cross over at locations to the north of Ferry Lane and about two thirds of the water down Ferry Lane. The ditch system at the north of Ferry Lane drains from west to east and follows the route of the A4155 to Abbey Lodge and then follows a route alongside the New Lock Lane a private track to the south of the Danesfield House Hotel and flows down towards the River Thames eventually discharging into the main River Thames at Hurley Lock.

Main river routes fall under the responsibility of the Environment Agency and surface and highway water systems fall under the responsibility of Buckinghamshire County Council and Transport for Bucks respectively. The map of assets is shown in Figure 2.

The ditches around Medmenham are ordinary watercourses and fall under the responsibility of Buckinghamshire County Council although the responsibility for maintenance of any watercourse (main river or ordinary watercourse) falls to the landowner.

The foul water system present in the residential area is operated by Thames Water although some of the outlying properties have private drainage systems.

There is a highways ditch along the west side of Ferry Lane. This highway ditch takes the water from the highway and also is the outlet for some of the drainage of water from the land drain to the north of Monks Cottage. This highways drain appears to be a soakaway drain as it passes into a pipe under the entrance to the Water Research Centre opposite to Olmeda and does not appear to have an outlet. The highways drains are maintained by Transport for Buckinghamshire



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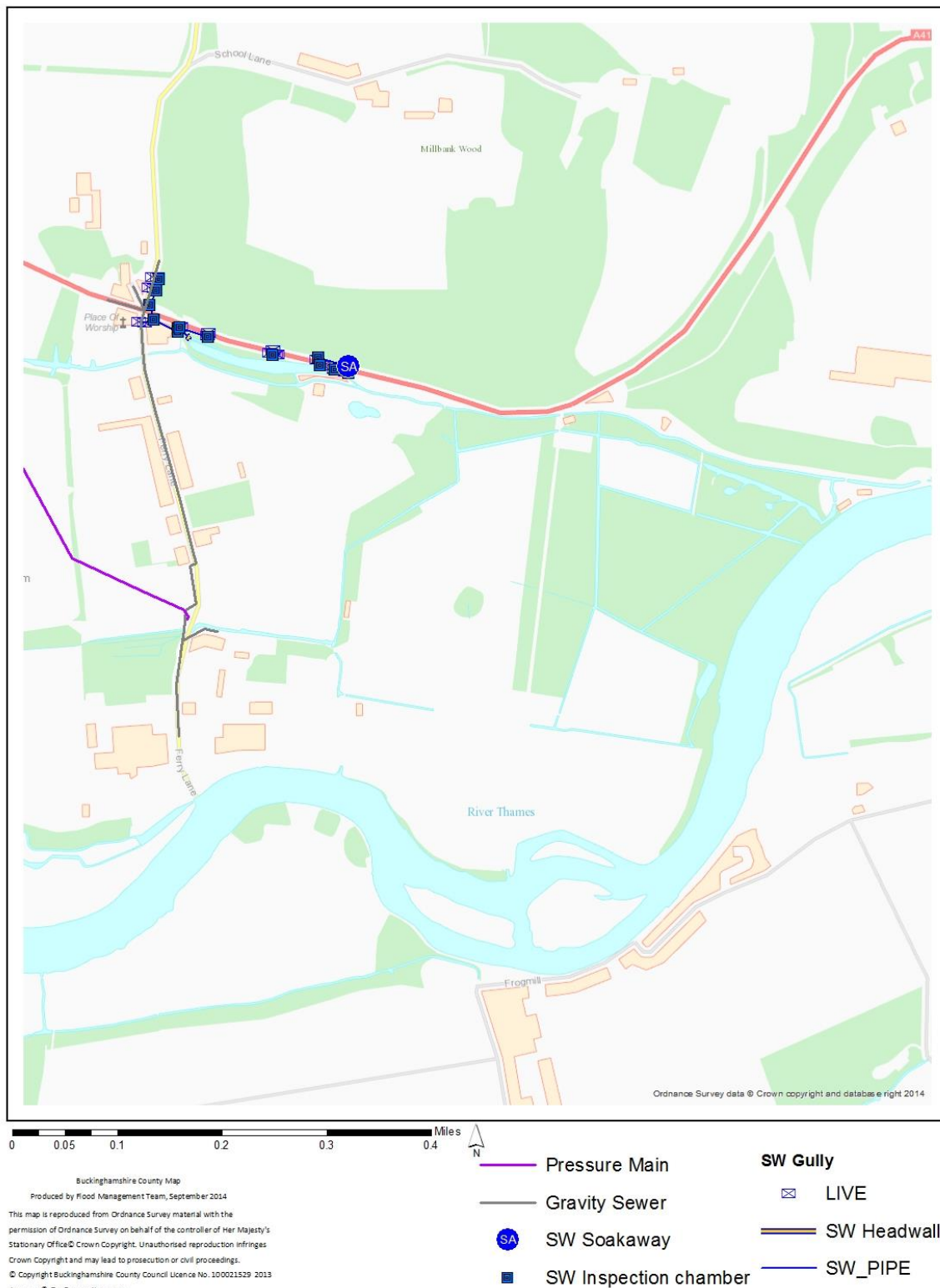


Figure 2 Network of assets



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## 2. Background/ History of flooding

### 2.1 Catchment and site characteristics

The area of Medmenham is in the catchment of the River Thames. The catchment topography, north of Medmenham, shows steep slopes with unconfined chalk dominating the geology, overlain by London clay along the southeast boundary of the catchment. The Buckinghamshire area receives a winter long term average rainfall over period December, January and February of 185mm.

Most of the village of Medmenham is located on land south of the A4155 which is a natural flood plain and identified by the Environment Agency as being at high risk of flooding using their National Flood Risk Assessment (NaFRA) maps, Figure 3a. This area is also designated as Flood Zone 3, see Figure 3b, a designation now used for planning purposes. There are no flood defences along this stretch of the river and the levels of the River Thames are constrained by locks and weirs at Mill End (Hambleden) upstream and Hurley downstream. The Environment Agency assumes the riverbanks offer a standard of protection (SoP) against a 1 in 5 year flood in the flood models for this region. Figure 4 shows the surface water flood risk.

There is a network of streams and land drains within the low lying part of the village, especially to the East of Ferry Lane. Some of these are the remains historic braids of the River Thames, others have been engineered.

There are a number of properties south of the A4155 that occupy higher ground within this flood plain. The majority of these properties are along Ferry Lane that runs south from the A4155 to the Thames, with additional properties in the vicinity of New Lock Lane to the East. Most of the land is low-lying at between 30-31m AOD. The 75year return period for the level of the River Thames at Medmenham is close to 30.6m.

The predicted surface water flooding for a 1 in 100 year event is shown in Figure 4.

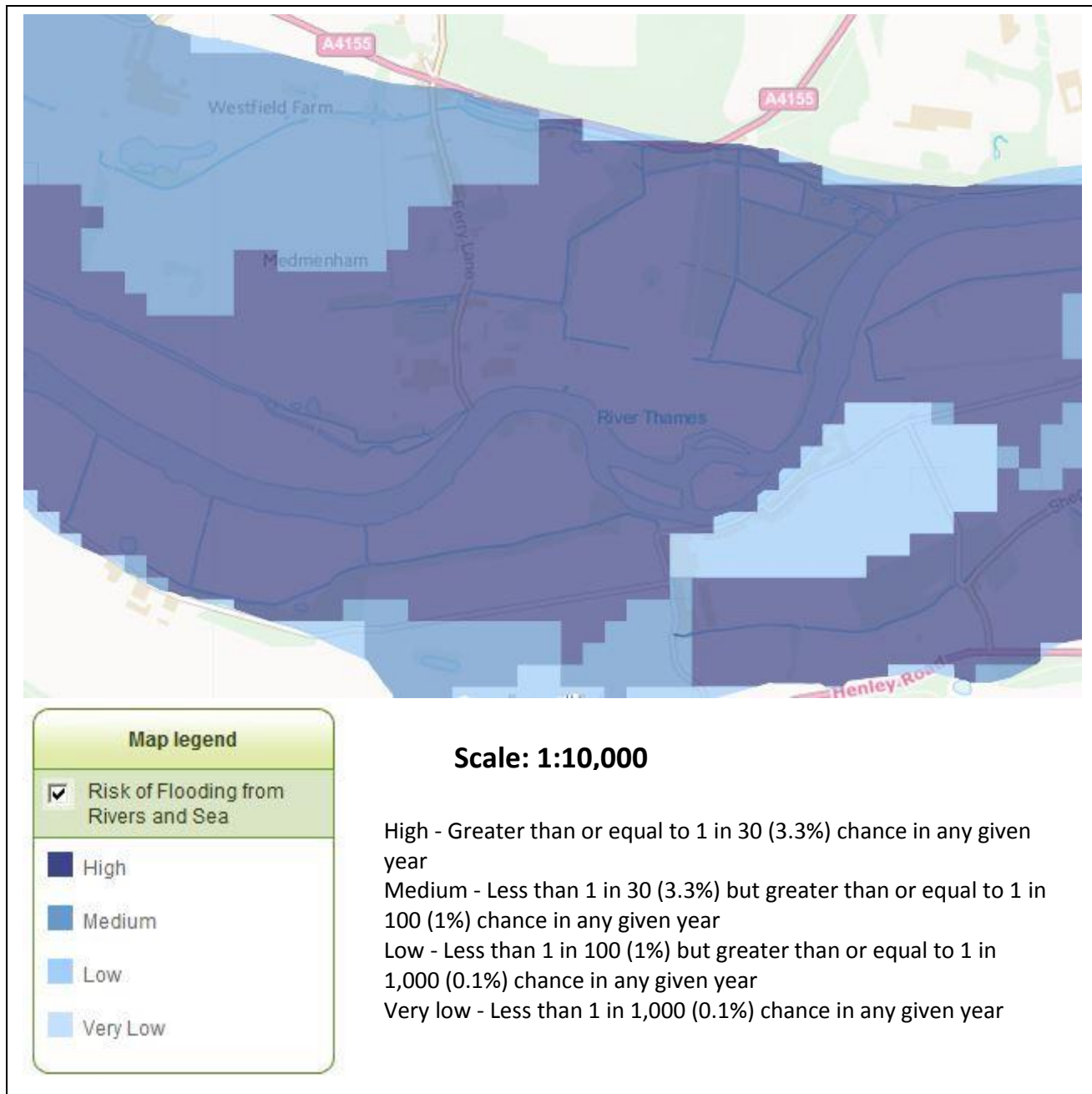
The surface water maps suggest that the surface water flooding will be limited in this area even in a 1 in 100 year event although in a 1 in 100 year event the flooding may be extensive.

The figures 3a, 3b and 4 show that the flooding is dominated by the River Thames where Flood Zone 3 or 1 in 100 year event covers almost the entire village. The surface water flooding is more limited to the drainage channel and for an extreme a 1 in 1000

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year event for some of the area to the east of the village towards Hurley Lock would be impacted

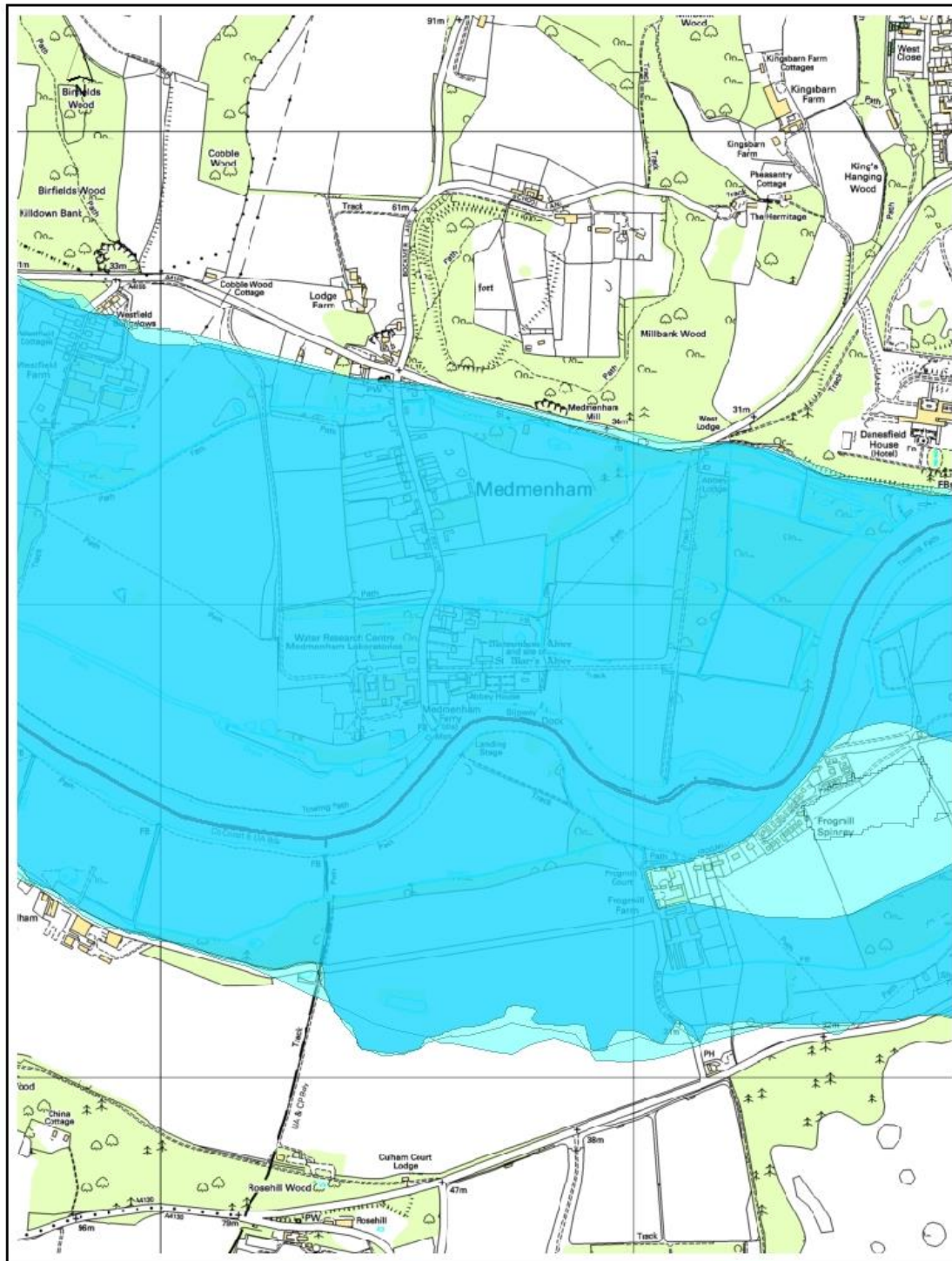
Hurley Lock is the closest to Medmenham, situated about 1 mile downstream of Ferry Lane.



**Figure 3a Areas at risk from river flooding, National Flood Risk Assessment Map EA, 2014**



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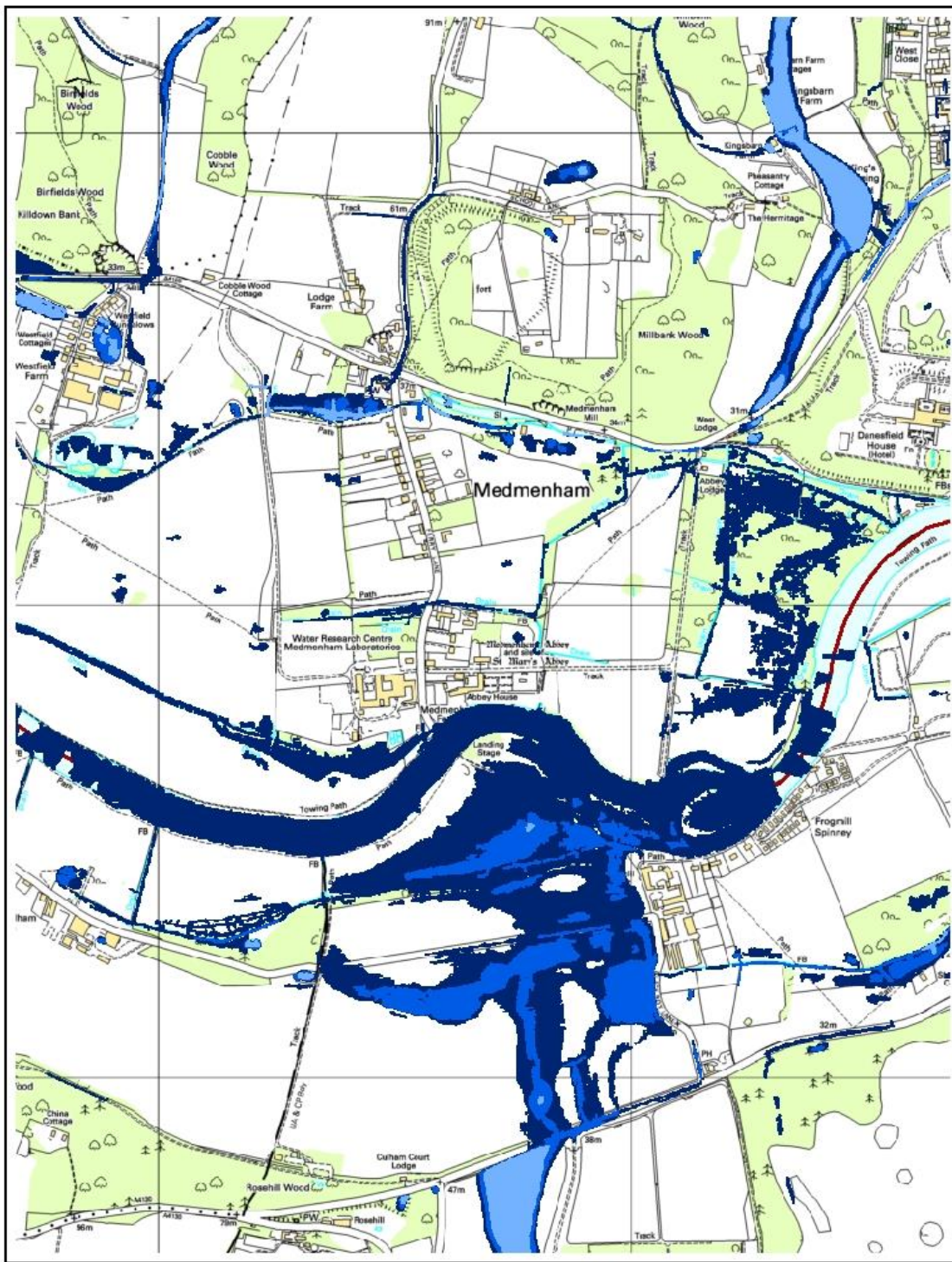
Buckinghamshire County Map  
Produced by Flood Management Team, September 2014

- Flood Zone 3
- Flood Zone 2
- Areas Benefiting from Flood Defences
- Defences

Figure 3b Areas at risk from river flooding, EA, 2014



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Buckinghamshire County Map  
Produced by Flood Management Team, September 2014

**Legend**

- 1 in 30 yr Surface Water Flood Event
- 1 in 100 yr Surface Water Flood Event
- 1 in 1000 yr Surface Water Flood Event

**Figure 4 Areas at risk from Surface water flooding, EA, 2014**

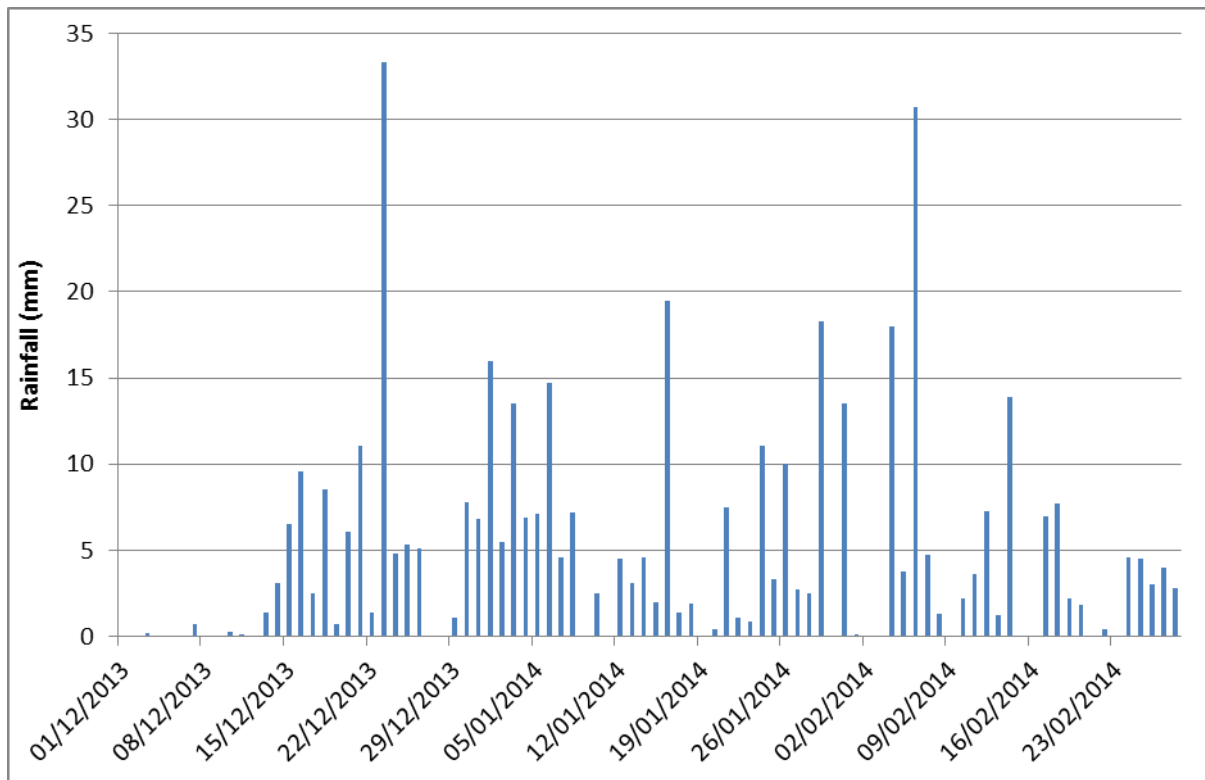


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## 2.2 Previous flood events

In the Preliminary Flood Risk Assessment (PFRA) (BCC, 2011) the records show that 19 properties affected by flooding in Medmenham during the in groundwater flooding event 2000/01. High river levels in 2012 caused flooding around Medmenham. Before that it was the floods of 2003 which were the highest recorded since the 1947 floods and caused extensive damage to houses in Medmenham and the surrounding areas.

## 2.3 Rainfall Data



**Figure 5 Rainfall data from Hambleton**

Figure 5 shows the rainfall data from the Hambleton rain gauge nearby to Medmenham for the three month period December, January, February. This figure shows the consistently high rainfall over this period with rain on the majority of days and 6 days when the rainfall totals were over 15mm. The winter rainfall recorded in Buckinghamshire in December 2013, January and February 2014 was 420mm in comparison to 185mm average winter rainfall.



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## **2.4 Flood Patterns and influences on flood risk**

There are three general flood patterns that affect the village flooding on Ferry Lane South, flooding on Ferry Lane North and Flooding on New Lock Lane. Each affects a distinct set of properties, however flooding at one location affects the others can be seen, the vast majority of properties are affected in the Southern half of Ferry Lane.

Property flooding typically occurs when the waters are sufficiently high such that the flooding from the South (Ferry Lane) meets flooding from the north East (New Lock Lane). Once this happens there is a dominant NE flow of floodwater from where the Thames breaks its banks west of Medmenham, through to the wetlands adjacent to New Lock Lane.

### ***Flooding on Ferry Lane South***

Ferry Lane runs due south from the A4155 to the River Thames where there is a slipway into the river. There are properties along either side of Ferry Lane on ground that is slightly higher than the surrounding floodplain. Properties typically back onto open land. About three-quarters of the way down ferry lane there is a small white rail bridge crossing a land drain at a group of houses called Abbey Cottages. South of this, properties are only found on the eastern side of Ferry Lane, the Western side occupied by the former Water Research Centre.

Flooding occurs when the River Thames level rises. In the first instance water progress is up Ferry Lane from the slip way and on the eastern side of Medmenham Abbey where there is low-lying flood plain. As the height of the river rises, the River Thames breaks its banks further west of Medmenham and travels across the floodplain to the bridge crossing near Abbey cottages. Once this has happen the dominate flood flow is north east towards the wetlands adjacent to New Lock Lane. Properties normally affected are those south of the 'white bridge', but in particular Abbey Cottages and those at the entrance to Medmenham Abbey.

Once the River Thames has broken its banks, practically all properties south of Abbey Cottages can be impacted by flooding. Several properties in this area are raised so whilst not at so much risk from internal flooding, they can be surrounded by water.

### ***Flooding along New Lock Lane***

New Lock Lane runs from the A4155 to the RAF Watersports centre on the River Thames. It is a private road that is maintained by the RAF Watersports centre although the land itself is owned by Danesfield House. The lane has steep vertical cliffs to the north and east and wetlands to the south and west. Along the land are four private

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houses in addition to the RAF Watersports centre. The wetlands have a series of land drains that drain both upstream and downstream of Hurley Weir. The drains continue west into the main part of Medmendam. The main drain stream is feed from the Mill race at Medmenham Mill.

Flooding occurs when the River Thames is high and the drains simply back-up and break their banks. Flooding occurs westwards back towards Medmenham normally affecting the gardens of Memenham Gates, Abbey Lodge and the RAF club. Once the River Thames breaks its banks on west of Ferry Lane the combine flood water exacerbates the situation causing property flooding

### ***Flooding on Ferry Lane North***

The land drains that cause flooding on New Lock Lane have their source further west and when the River Thames is high, these back-up and break their banks causing flooding in the north of Ferry Lane, particularly the Common Moor and the land south of the church. When the River Thames breaks its banks, it contributes to the water being drained and this causes property flooding in the north of Ferry Lane.

### ***Flooding at Westfield***

Reports have been made via the Parish council that there was flooding in the back gardens of one of the bungalows for a prolonged period of time. The local information was that this was due to groundwater rising locally. This is consistent with high groundwater in the adjacent areas such as along the Hambleden valley during this time. The area of Westfield to the west of Medmenham could be impacted by three sources of flooding. There is a risk from the fluvial flooding from the River Thames although the risk at that location is medium or low as shown on Figure 3a. There is also a risk in some locations within Westfield of surface water flooding as shown on Figure 4. The figure shows that there is a flow route for surface water flooding from Damaskfield Wood to the north of Westfield. Although there are no detailed maps for groundwater flooding for this areas the general area on the chalk catchments or Hambleden to Marlow are susceptible to groundwater flooding and the groundwater is likely to emerge along a similar locations as the surface water flooding.

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## 3. Analysis of January and February 2014 flood events

### 3.1 Conditions at the time (i.e. ground conditions)

The extensive rainfall and wet conditions over the 3 months leading up to the flooding events of 9<sup>th</sup> February meant that the surrounding ground was saturated and the soil moisture deficit across the catchment was 0mm.

### 3.2 Condition of features/ structures

There are a number of structures and flood defences along the River Thames in this area which are regularly inspected and their condition was rated as good.

### 3.3 Condition of watercourse

The watercourse is reported by the EA to have been in good condition. Any maintenance work for this reach of the River Thames can be found on the Environment Agency website at <https://www.gov.uk/government/publications/river-and-coastal-maintenance-programme>.

### 3.4 What happened in 2014 flood events? (Flows paths, damage etc.)

There were two flood events along the River Thames which impacted upon Medmenham, one in January 2014 and February 2014, although the onset of flooding was in December 2013. The January 2014 event was comparable to the January 2003 event, as evidenced by various flood marks and recollections of residents (see Appendix A). Residents however were unanimous that February 2014 was worse than January 2003. A resident who lived in the village in 1947 stated that these floods were worse than the 1947 floods.

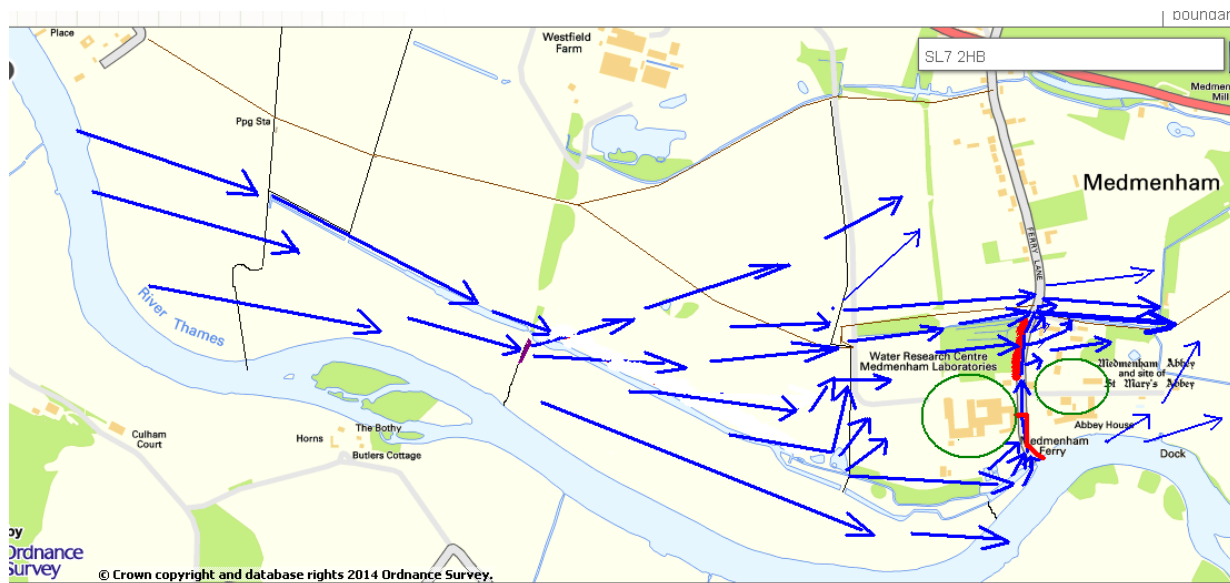
Figures 6 and 7 show the location and the route of the flooding in January and February 2014. The numbers in the circles indicates the number of properties affected by flooding in January and February 2014.



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**Figure 6 Location of flooding in February 2014 in Medmenham area (Millard K. and McLeish P., 2014)**



**Figure 7 Flow routes from the River Thames into Medmenham (Millard K. and McLeish P., 2014)**

During the flood events the majority of residents remained in their houses and only two houses were evacuated. Some owners of houses operate pumps and these are essential to keeping water from entering their property or when it does keeping waters inside their house to a manageable level. However there were a large proportion of

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residents who could not access their houses due to the depth of flooding on Ferry Lane. Water depth on Ferry Lane was up to 80cm and the west to east flow across Ferry lane. Bucks Fire and Rescue advised that the road and flood water were too dangerous for crossing, even in 4\*4 vehicles and residents needed to take advantage of the 'tractor taxi' provided by Medmenham Abbey.

### ***Flooding on Ferry Lane South***

Property	Impacts
Olmeda	Access flooded via Ferry Lane to 60cm Property flood to 10's cm. Occupants Evacuated by bucks Fire and Rescue
Gate Cottage	Access flooded via Ferry Lane to 60cm. Property flooded to 10cm due to pumping (next door to Olmeda
1 Abbey Cottage	5 inches in the house (reduced by pumping) 18 inches at the front door 3 foot at the gate at the road.
2 Abbey Cottages	Water in houses. Limited access due to flooding on Ferry Lane
3 Abbey Cottages	4 inches at front door, 8 inches at backdoor. Water level one inch in house with two pumps. Limited access due to flooding on Ferry Lane
4 Abbey Cottages	Water in houses. Limited access due to flooding on Ferry Lane
5 Abbey Cottages	5 inches at backdoor 2 inches in house with flood gates >2 feet in back garden
6 Abbey Cottages	No 6 Abbey Cottages didn't have any water in the house but the garden was flooded. Limited access due to flooding on Ferry Lane
Field Fares	The water came within 5mm of the top of our patio. However the way the land is, the drive exits on to the lowest part of Ferry Lane, as shown in Figure 11, there is a real challenge living here when the water is high
Abbots Brook	Flood waters up to house. Access limited by flood depth of Ferry Lane (as with Field Fares.
The Abbey	4 inches higher than 2003 levels. In 2003 it did not enter the pool house.

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	In 2014 there was 4 inches. All of ground floor flooded
Monks Hood	Access flooded via Ferry Lane to 60cm
Ferry Nab	Access flooded via Ferry Lane to 60cm

***Flooding on Ferry Lane North***

Property	Impacts
The Mill	Gardens (~8 Acres) fully immersed. Out building flooded. Flooding in January 2014 verified by owners as being same as January 2003.
Mary's Cottage	House and gardens flooded
Culdew Cottage	Extensive Garden flooding.
Brook House	Extensive garden flooding.

***Flooding Along New Lock Lane***

Property	Impacts
Abbey Lodge	Garden and drive fully immersed between 30cm and 1m, 0.5m on average. House flooded to maximum of 20cm in Feb 2014.
Medmenham Gates	Gardens extensively flooded, but no flooding in house or on driveway
RAF Club	All boat yard area flooded (Estimate several inches)
Kingfisher Lodge	No water in house January 2014 Water levels not full over three bridges to house, suggesting close to 2003 levels, but not over. In 2003 bridges completely covered.



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### 3.5 Diary and Incident response

#### January 2014

Date and time	Activity/event	Agency
<b>24 December 2013</b>	Flood Alert issued at 08.00	EA
<b>04 January 2014</b>	Flood Warning issued at 18.00	EA
<b>05 January 2014</b>	Water begins to back up Ferry Lane from River Thames Flood Warnings issued on river Thames for Medmenham	EA
<b>06 January 2014</b>	Water backing up Ferry Lane and up Abbey Cottage driveway. Tractor lifts started	Local residents
<b>07 January 2014</b>	Water coming from Ferry Lane and through Water Research from westerly direction 50 sand bags delivered to Ferry Lane Flood warnings issued by EA	WDC EA
<b>08 January 2014</b>	2-3 inches water in Abbey Lodge, New Lock Lane Rescue of a couple from Olmeida on Ferry Lane, Police are also in attendance on the scene.	Bucks Fire and Rescue Service and Police
<b>09 January 2014</b>	Water all the way up Ferry Lane to Southlands but not in any houses above Abbey Cottages. Water peaked at level Bucks FRS note that 15 properties flooded at Medmenham	
<b>10 January 2014</b>	Water level stable. EA Flood observers came	EA
<b>11 January 2014</b>	Water going down slightly. EA continuing to observe but can't access down Ferry Lane	
<b>12 January 2014</b>	Water fallen by 4inches in am and 5inches by 3pm from highest point. Still flowing very fast up Ferry Lane and over bridge. Water still covering bridge. Water just inside Abbey Gates and at level of Weybrooks garage. By 11pm all water out of the house. EA observers still present	
<b>14 January</b>	Water well down from white rail bridge and not spilling	

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<b>2014</b>	over to drainage stream. Water still flowing from Water Research and still coming up from the river and over into ditch on west of Ferry Lane. By evening water not flowing across Ferry Lane above the bridge	
<b>15 January 2014</b>	Some water still draining from Ferry Lane into ditches but no flow from river	
<b>21 January 2014</b>	Flood Warning removed at 10.32	EA

Depths were recorded through the flood event by a resident and are recorded in Appendix A.

### ***February – March 2014***

<b>Date and time</b>	<b>Activity/event</b>	<b>Agency</b>
<b>01 February 2014</b>	Flood warning issued at 17.02	EA
<b>02 February 2014</b>	Water began coming up Ferry Lane in the early evening	
<b>03 February 2014</b>	Water had begun to cross the lane from the west out of the pathway by pumping station	
<b>04 to 05 February 2014</b>	Water continuing to come up Ferry Lane	
<b>06 February 2014</b>	Flooding expected on River Thames, Duty Resilience Officer notified Water all the way up Ferry Lane and across road.	BCC
<b>09 February 2014</b>	Water everywhere very fast and up to Southlands on Ferry Lane.	
<b>10 February 2014</b>	Highest level observed at 12 noon. Water is also coming from the west behind all the houses higher up Ferry Lane and slightly flowing down the lane to meet at Southlands. People in houses opposite Southlands putting sandbags in front of garages etc. Front paving of Willow Cottage is wet.	
<b>11 February 2014</b>	Water receding	
<b>14 February 2014</b>	Water well down but still flowing up Ferry Lane and over the bridge and across the road above the bridge	
<b>15 February 2014</b>	Water dropped a lot overnight but still flowing up Ferry Lane and across the road.	
<b>19 February</b>	Water shallower but still coming up Ferry Lane and	

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<b>2014</b>	over the bridge.	
<b>21 February 2014</b>	Water very slightly still coming up Ferry Lane but no longer over bridge or across road or across sluice. Draining via roadside ditch.	
<b>22 February 2014</b>	Water no longer coming from river. Just draining from Water Research and going into ditch. Puddles on road.	
<b>23 February 2014</b>	Flood Warning Removed at 15.51	EA
<b>10<sup>th</sup> March 2014</b>	Flood Alert Removed	EA

Residents were concerned about the coordination in response from the different authorities which appeared to be lacking with no overall clear responsibility leading to limited assistance for residents. The different authorities, during both flood events including staff, sandbags and pumping were concentrated on the higher population centres which were impacted such as Marlow.

At Hurley Lock Downstream the following levels were observed for the January and February 2014 events and compared with the 2003 event. This indicates that the levels locally at Hurley were slightly lower than the 2003 event. The observation by residents were that water flowed up Ferry Lane quicker than in 2003 and that the flood levels were of a similar height.

<b>Upstream</b>	<b>Downstream</b>
Site datum: 29.19 m AOD	Site datum: 26.267 m AOD
Jan 2014 water level peak 29.61m	Jan 2014 water level peak 29.1m
Feb 2014 water peak 29.67m	Feb 2014 water level peak 29.13m
Jan 2003 water level peak 29.82m	Jan 2003 water level peak 29.14m

### **Hurley Lock Flood Levels**

#### **3.6 Possible causes**

Prolonged rainfall caused the land to be saturated and therefore there was increased water from the catchment entering river network. The rainfall in this area created a fluvial event which was measured as between a 1 in 50 year and 1 in 100 year event. The levels of the flood on the River Thames were possibly slightly lower than a previously large flood in 2003 but the duration of the flood events both in January and then again in February were unprecedented.

The low-lying nature of the land around Medmenham means that it is very susceptible to flooding from the River Thames. When the River Thames rises the water flows up Ferry Lane from the south flooding the road and houses and then a second route of



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water is across the fields from the west where the water breaks the banks of the River Thames south of Hambleden Lock and flows across the fields towards and through the site of the former Water Research Centre. The two flow routes meet on Ferry Lane and flood the road to make it impassable other than by boat or tractor and flood houses to a significant depth.

## 4. Responsible Authorities and landowners

There are different responsibilities for flood management depending on the type of flooding. Organisations responsible for flooding are known as Risk Management Authorities (RMAs) and their responsibilities are detailed below. Riparian landowners also have responsibilities for watercourses across their land and these are also detailed below. These are summaries of the details included in the BCC Local Flood Risk Management Strategy (2013-2018) (BCC, 2013).

### 4.1 Lead Local Flood Authority

The LLFA in this area is Buckinghamshire County Council. BCC have a role as a RMA in coordinating management of local flood risk from surface water, ground water and ordinary watercourses in the county. The River Thames is designated as main river. Any flooding from surface water comes under BCC as the LLFA.

### 4.2 Wycombe District Council

Wycombe District Council (WDC) have responsibilities to inspect and maintain watercourses on District Council land, respond to requests for assistance during flood events and have the power, if instructed by BCC, to carry out flood risk management work which will benefit management of surface runoff, groundwater and ordinary water courses.

### 4.3 Environment Agency

The EA is one of the RMAs as defined by the FWMA 2010. Protecting the river environment and managing flood risk is part of their job. The EA is the RMA for flooding from main rivers. The River Thames is designated as main river. The EA have permissive powers and responsibilities to manage flood risk from main rivers.

### 4.4 Highways Authority – Transport for Buckinghamshire

Any flooding from highways is managed by the Highways Authority which is BCC and the highways function is managed by TfB.

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#### **4.5 Water Utility Company – Thames Water**

Thames Water is responsible for flooding from foul sewers and surface water sewers which they own. Whilst undertaking this they must manage flood risk from sewers

#### **4.6 Canal and River Trust**

Not relevant in this location

#### **4.7 Landowners and riparian owners**

Landowners and riparian owners must maintain any culvert, or the bed and banks of any adjacent watercourse. They should clear away any debris from the watercourse or culvert even if it did not originate from their land.

Riparian owners can find further guidance on their responsibilities as landowners in the Environment Agency document 'Living on the Edge' which can be found online at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/297423/LI\\_T\\_7114\\_c70612.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297423/LI_T_7114_c70612.pdf).

#### **4.8 Residents**

Residents have a responsibility to take measures to protect themselves and their property when flooding is imminent.

#### **4.9 Emergency Responsibilities**

The emergency responsibilities are outlined in table 1 below.

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**Table 1 Roles and responsibilities in an emergency, during and after a flood event**

<p><b>Local (County and District) Authorities</b></p> <ul style="list-style-type: none"> <li>• Coordinate emergency support within their own functions</li> <li>• Deal with emergencies on 'non main rivers'</li> <li>• Coordinate emergency support from the voluntary sector</li> <li>• Liaise with central and regional government departments</li> <li>• Liaise with essential service providers</li> <li>• Open rest centres</li> <li>• Manage the local transport and traffic networks</li> <li>• Mobilise trained emergency social workers</li> <li>• Provide emergency assistance</li> <li>• Deal with environmental health issues, such as contamination and pollution</li> <li>• Coordinate the recovery process</li> <li>• Manage public health issues</li> <li>• Provide advice and management of public health</li> <li>• Provide support and advice to individuals</li> <li>• Assist with business continuity</li> </ul>	
<p><b>Police Force</b></p> <ul style="list-style-type: none"> <li>• Save life</li> <li>• Coordination and communication between emergency services and organisations providing support</li> <li>• Coordinate the preparation and dissemination</li> </ul> <p><b>Fire and Rescue Service</b></p> <ul style="list-style-type: none"> <li>• Save life rescuing people and animals</li> <li>• Carry out other specialist work, including flood rescue services</li> <li>• Where appropriate, assist people where the use of fire service personnel and equipment is relevant</li> </ul> <p><b>Ambulance Service</b></p> <ul style="list-style-type: none"> <li>• Save life</li> <li>• Provide treatment, stabilisation and care at the scene</li> </ul>	<p><b>Utility Providers</b></p> <ul style="list-style-type: none"> <li>• Attend emergencies relating to their services putting life at risk</li> <li>• Assess and manage risk of service failure</li> <li>• Assist with recovery process, that is, water utilities manage public health considerations</li> </ul> <p><b>Internal Drainage Board</b></p> <ul style="list-style-type: none"> <li>• Operate strategic assets to reduce flood risk in partnership with RMAs and public</li> </ul> <p><b>Town and Parish Councils</b></p> <ul style="list-style-type: none"> <li>• Support emergency responders</li> <li>• Increase community resilience through support of community emergency plan development</li> </ul> <p><b>Voluntary services</b></p> <ul style="list-style-type: none"> <li>• Support rest centres</li> <li>• Provide practical and emotional support to those affected</li> <li>• Support transport and communications</li> <li>• Provide administration</li> <li>• Provide telephone helpline support</li> </ul>
<p><b>Environment Agency</b></p> <ul style="list-style-type: none"> <li>• Issue Flood Warnings and ensure systems display current flooding information</li> <li>• Provide information to the public on what they can do before, during and after a flood event</li> <li>• Monitor river levels and flows</li> <li>• Work with professional Partners and stakeholders and respond to requests for flooding information and updates</li> <li>• Receive and record details of flooding and related information</li> <li>• Operate water level control structures within its jurisdiction and in line with permissive powers</li> <li>• Flood event data collection</li> <li>• Arrange and take part in flood event exercises</li> <li>• Respond to pollution incidents and advise on disposal</li> <li>• Assist with the recovery process, for example, by advising on the disposal of silt, attending flood surgeries</li> </ul>	



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## 5. Conclusions and recommendations

### 5.1 Conclusions

There were a number of issues that contributed towards the flooding that occurred in Medmenham including the extreme rainfall experienced prior to at the time.

The flooding in January and February 2014 came from the River Thames being at very high levels due to the high rainfall in the preceding months. There were 23 properties affected by flooding in the Medmenham area with 10 having internal flooding and two homes being evacuated.

The source of the flooding was up Ferry Lane as the River Thames rose and also across the fields from the westerly direction where the River Thames had broken its banks further upstream and the flow of flood water is across the fields. The surface water channels and drainage ditches are not able to flow and discharge as the river water levels are so high and create backing up through the ditches and wetland areas.

The extent of the water impacted around half of the properties within Medmenham either through internal property flooding or restricted access to homes. The length of the disruption was extensive and occurred twice within two months.

The residents coped well and supported each other. The residents felt that support from the Authorities (EA, BCC, WDC) was “uncoordinated, not timely and adhoc meaning that it had limited benefit” (Personal correspondence, 2015).

The flood events were documented well by the residents during the flood. The residents are keen to progress action for improving the flood situation and response in Medmenham and site meetings have been held and the RMAs have attended parish meetings to discuss this further.

### 5.2 Recommendations

Some recommendations have been put forward and are summarised in the table below. They include some actions such as maintenance of the defences and structures and these actions have to be part of an ongoing schedule. The table also includes some more strategic actions, such as looking at where defences need to be upgraded to take account of climate change or areas upstream where flood water can be attenuated or stored.

When discussing the possible causes it was clear that several actions could be undertaken by a variety of the RMAs involved to help to alleviate and manage the

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flooding issue.

Authority/Stakeholder	Recommended Action
All RMAs	<p>To work together to liaise and look at the catchment to consider options for flood management which could include:</p> <ul style="list-style-type: none"> <li>• Make improvements to the emergency response and co-ordination from all organisations</li> <li>• Share information regarding operation of structures and assets</li> <li>• Implement discussions with key service providers of electricity and sewage to ensure continuity of service</li> <li>• Investigation of temporary defences</li> <li>• Look at options for capital works on the River Thames which would protect Medmenham but also consider the impacts on the wider catchment. <i>Investigation of capital works had been included for consideration for Medmenham in the EA FDGiA programme for 2021 onwards.</i></li> <li>• To discuss setting up a Medmenham Flood Group with residents, land owners and relevant RMAs.</li> </ul>
EA	<ul style="list-style-type: none"> <li>• Explain to resident how flood warning from Thames operates and relates to flooding in Medmenham. <i>Since flooding changes to flood warning have been made which will be communicated to residents</i></li> <li>• Discuss with residents the possibility of verifying fixed points with survey equipment to inform the flood peaks and return periods</li> </ul>
TfB	<ul style="list-style-type: none"> <li>• Carry out cleansing of all gullies and highway drainage and continue to do so as part of the agreed maintenance schedule.</li> </ul>
BCC	<ul style="list-style-type: none"> <li>• To ensure the owners of culverts and watercourses/ditches within the area are aware of their responsibilities.</li> <li>• To understand the surface water drainage system around Medmenham</li> <li>• To facilitate sharing of information between RMAs and the community.</li> <li>• If required to use enforcement action under Section 25 of the Land Drainage Act where land owners have failed to maintain/remove obstructions from ordinary watercourses.</li> </ul>
WDC	<ul style="list-style-type: none"> <li>• Work with residents on a Community Flood Plan</li> </ul>
Thames Water	<ul style="list-style-type: none"> <li>• Be part of discussions on flood management to ensure provision of service is maintained</li> </ul>
Riparian Landowner	<ul style="list-style-type: none"> <li>• Undertake clearance of vegetation and debris on any</li> </ul>

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	<p>adjacent ordinary watercourses (including ditches) and main rivers with guidance from relevant RMAs.</p> <ul style="list-style-type: none"> <li>To follow the guidance given in the EAs booklet 'Living on the Edge' about their responsibilities as riparian owners.</li> </ul>
Residents	<ul style="list-style-type: none"> <li>Take measures to protect themselves and their property when flooding is imminent.</li> <li>Sign up to flood warnings if their property is at risk</li> <li>Continue to document and photograph flood incidents where possible and report flooding to WDC, BCC and EA.</li> </ul>

## Explanation of Terms and Acronyms

Acronym	Definition
AOD	Above Ordnance Datum
BCC	Buckinghamshire County Council
Bucks CC	Buckinghamshire County Council
EA	Environment Agency
FWMA	Flood and Water Management Act
LLFA	Lead Local Flood Authority
PFRA	Preliminary Flood Risk Assessment
RMA	Risk Management Authority
WDC	Wycombe District Council
TfB	Transport for Buckinghamshire
TW	Thames Water

## References

Reference in Document	Refers to
BCC, 2013	BCC Local Flood Risk Management Strategy (2013-2018), BCC, Aylesbury
BCC, 2011	Buckinghamshire County Council (2011). Preliminary Flood Risk Assessment. BCC, Aylesbury.
EA, 2014	Environment Agency flood map <a href="http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&amp;y=355134.0&amp;scale=1&amp;layerGroups=default&amp;ep=map&amp;textonly=off&amp;lang=e&amp;topic=floodmap&amp;utm_source=Poster&amp;utm_medium=FloodRisk&amp;utm_campaign=FloodMonth13">http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&amp;y=355134.0&amp;scale=1&amp;layerGroups=default&amp;ep=map&amp;textonly=off&amp;lang=e&amp;topic=floodmap&amp;utm_source=Poster&amp;utm_medium=FloodRisk&amp;utm_campaign=FloodMonth13</a>



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	<b>Contains Environment Agency information © Environment Agency and database right</b>
<b>Flood and Water Management Act (FWMA) 2010</b>	<a href="https://www.gov.uk/flood-risk-management-information-for-flood-risk-management-authorities-asset-owners-and-local-authorities">https://www.gov.uk/flood-risk-management-information-for-flood-risk-management-authorities-asset-owners-and-local-authorities</a>
<b>Millard K. and McLeish P., 2014</b>	<b>Medmenham Floods January/February 2014. Community Report of Flooding Release 3.0 - Public</b>
<b>Personal correspondence 2015</b>	<b>Personal correspondence between Karen Fisher and Medmenham Parish council via email</b>

## Contacts

### Lead Local Flood Authority



Flood Management Team  
Buckinghamshire County Council  
County Hall, Walton Street  
Aylesbury  
Bucks HP20 1UY

Telephone: 084537 08090

Email: [FloodManagement@buckscc.gov.uk](mailto:FloodManagement@buckscc.gov.uk)

Website: [www.buckscc.gov.uk/flooding](http://www.buckscc.gov.uk/flooding)

### Environment Agency



**Environment  
Agency**

National Customer Contact Centre  
PO Box 544  
Rotherham S60 1BY

Telephone: 03708 506506

Email: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)

Website: <http://www.gov.uk/government/organisations/environment-agency>

### District Council



Wycombe District Council,  
Queen Victoria Road,  
High Wycombe,  
HP11 1BB



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Telephone: 01494 461 000  
Email: [info@wycombe.gov.uk](mailto:info@wycombe.gov.uk)  
Website: <http://www.wycombe.gov.uk>

### Highways Authority

Transport for Buckinghamshire

Telephone: Transport and roads – 0845 2302882  
Out of hours emergencies (Highways) – 01296 486630

Email: [tfb@buckscc.gov.uk](mailto:tfb@buckscc.gov.uk)

Website: <http://www.transportforbucks.net/Transport-and-roads.aspx>

### Water Utility



Thames Water  
PO Box 286  
Swindon  
SN38 2RA

Telephone: 0845 9200 800

Website: <http://www.thameswater.co.uk/help-and-advice/16739.htm>

### Canal and River Trust



Canal &  
River Trust

#### Milton Keynes office

South East Waterways  
Canal & River Trust  
First Floor North  
Station House  
500 Elder Gate  
Milton Keynes  
MK9 1BB

Email: [enquiries.southeast@canalrivertrust.org.uk](mailto:enquiries.southeast@canalrivertrust.org.uk)

Website: <https://canalrivertrust.org.uk>

Telephone: Non-urgent events 08:00 to 18:00, Monday to Friday 0303 040 4040

Urgent response 0800 47 999 47

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## **Emergency Response**

### **Buckinghamshire Fire and Rescue Service**

Address: Buckinghamshire Fire & Rescue Service, Brigade HQ, Stocklake, Aylesbury, Bucks, HP20 1BD

Telephone: 01296 744400

Website: <http://www.bucksfire.gov.uk/BucksFire/Contact+Us/>

### **Thames Valley Police**

Telephone: 101 in non-emergency, 999 in emergency

Website: <http://www.thamesvalley.police.uk/contactus-phone.htm>

### **Buckinghamshire Ambulance Service**

Telephone: 111 in non-emergency, 999 in emergency

Website: <http://www.southcentralambulance.nhs.uk/content/press-release/buckinghamshire/flooding-advice.ashx>



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## Appendix 1 Recorded depths

### *Flood Depth Ferry Lane 11<sup>th</sup> January 2014 (datum – road surface, centre of road)*

	Depth of water on 11.1.2014	Corrected by 2cm to get highest value
Fieldfares	70cm	<b>72cm</b>
Monkshood	71cm	<b>73cm</b>
Olmeda and Abbey Drive	61cm	<b>63cm</b>
Ferry Nab	60cm	<b>62cm</b>
1 Abbey Cottage	61cm	<b>63cm</b>
Gate of Monks Cottage	56cm	<b>58cm</b>
Gate of sewage pumping station	35cm	<b>37cm</b>
Shallowest position in Ferry Lane (near river)	27cm	<b>29cm</b>
White rail bridge South end	30cm	<b>32cm</b>
Middle	13cm	<b>15cm</b>
North end	23cm	<b>25cm</b>

### *Flood Depth Ferry Lane on 12<sup>th</sup> January 2014 (datum – road surface, centre of road)*

	Depth of water on 12.1.2014	Corrected by 13cm to get highest value
Monkshood	59cm	<b>72cm</b>
Olmeda	51cm	<b>64cm</b>
Abbey Drive	50cm	<b>63cm</b>
Ferry Nab	49cm	<b>62cm</b>
Abbey Lodge	60cm	<b>73cm</b>

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1 Abbey Cottage	50cm	<b>63cm</b>
Gate of Monks cottage	46cm	<b>59cm</b>

***Flood Depth Ferry Lane on 12<sup>th</sup> January 2014 (datum – depth at left gate post)***

	<b>Depth of water on 12.1.2014</b>	<b>Corrected by 13cm to get highest value</b>
Monkshood	22cm	<b>35cm</b>
Olmeda	43cm	<b>56cm</b>
Abbey Drive	10cm	<b>23cm</b>
Ferry Nab	35cm	<b>48cm</b>
Abbey Lodge	45cm	<b>58cm</b>
1 Abbey Cottage	56cm	<b>69cm</b>
Gate of Monks Cottage	58cm	<b>71cm</b>
H sign on wall of Ferry Nab	36cm	<b>49cm</b>
Base of 'beware river' traffic sign	22cm	<b>35cm</b>