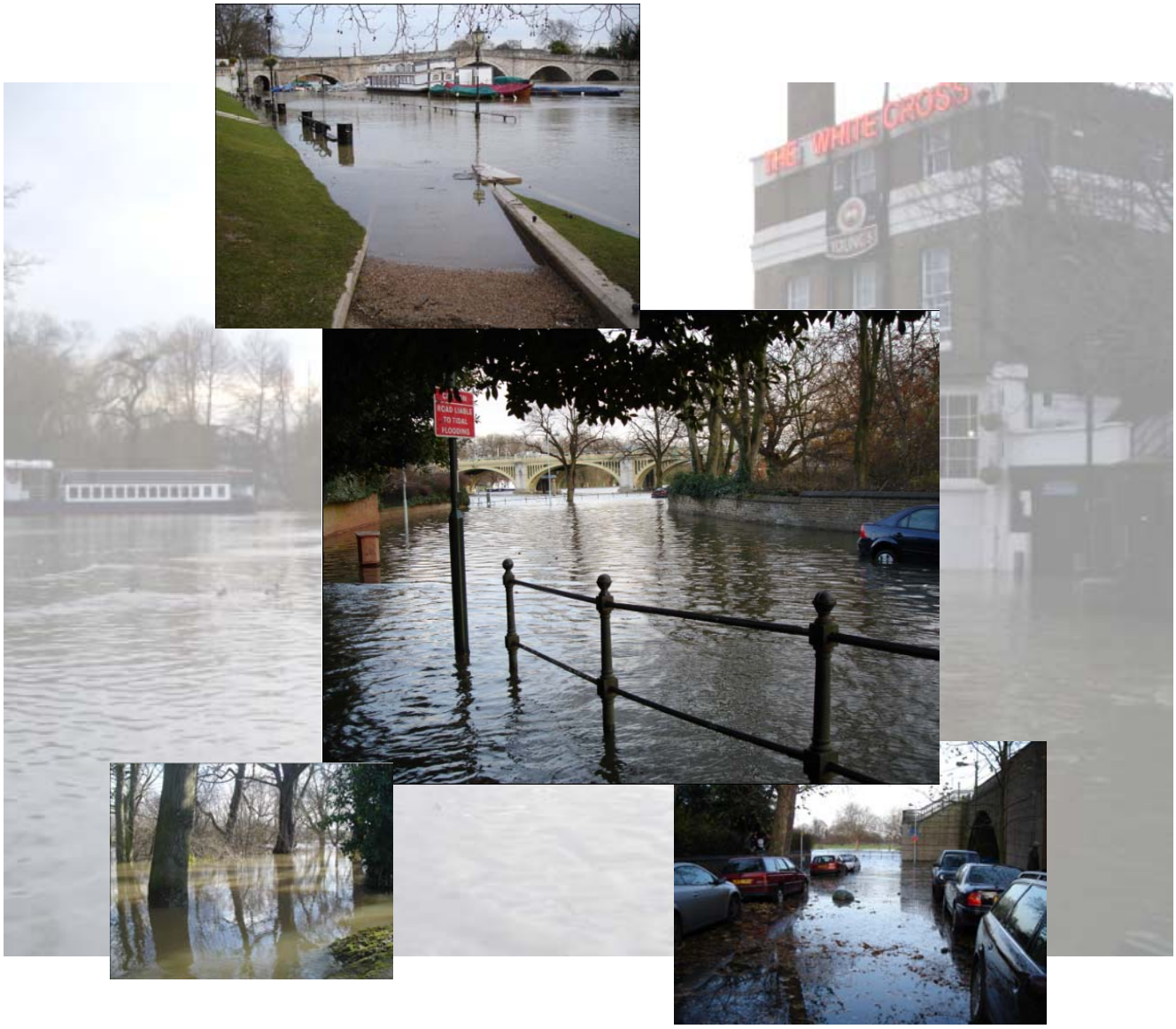
PROTECT - LONDON RESILIENCE PARTNERSHIP ONLY

Multi-Agency Flood Plan

For

London Borough of Richmond upon Thames



Version 2.0

LONDON BOROUGH OF RICHMOND UPON THAMES

METROPOLITAN POLICE
Working together for a safer London

PORT OF LONDON AUTHORITY

Met Office

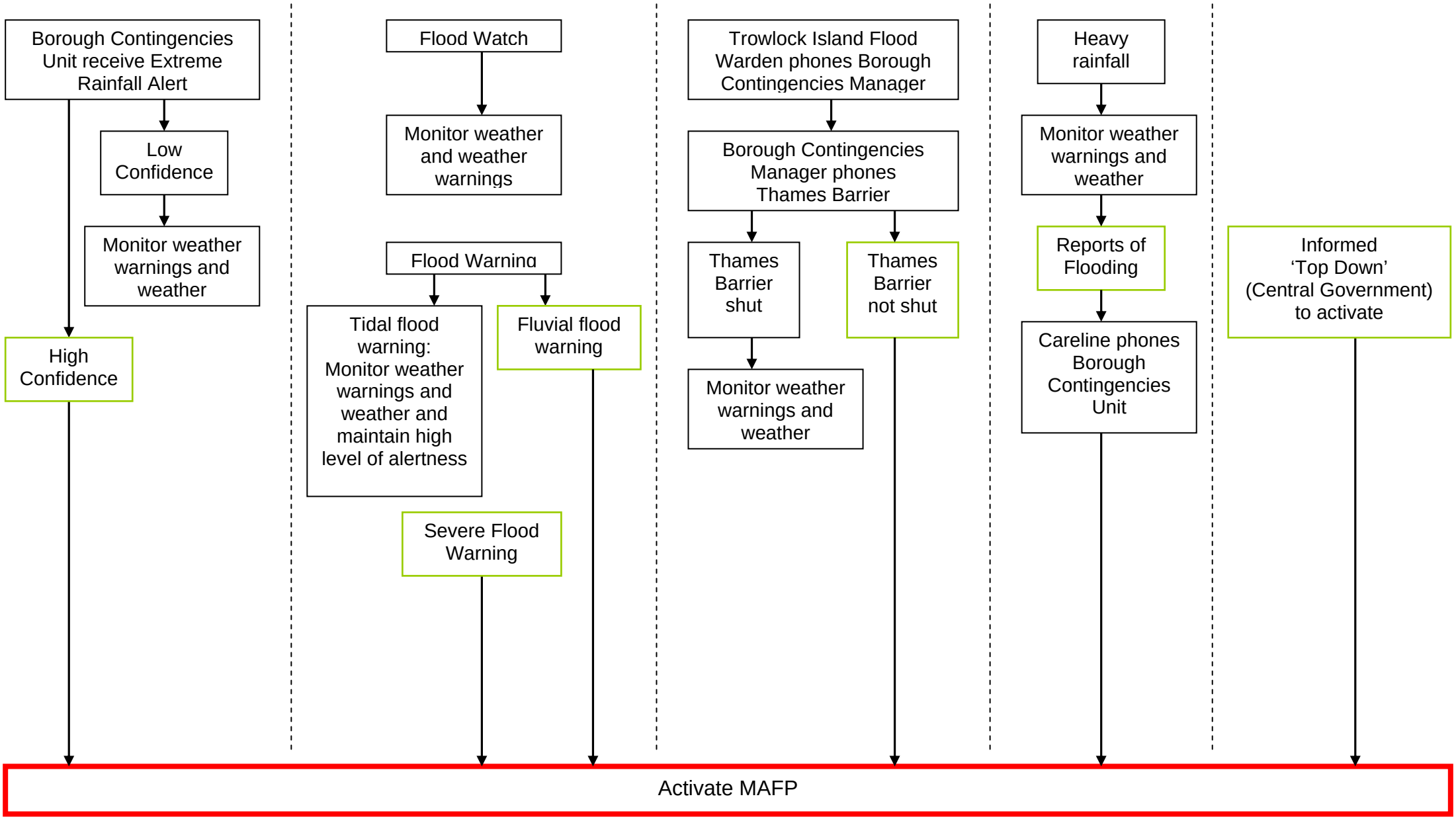
Environment Agency

Richmond and Twickenham NHS
Primary Care Trust

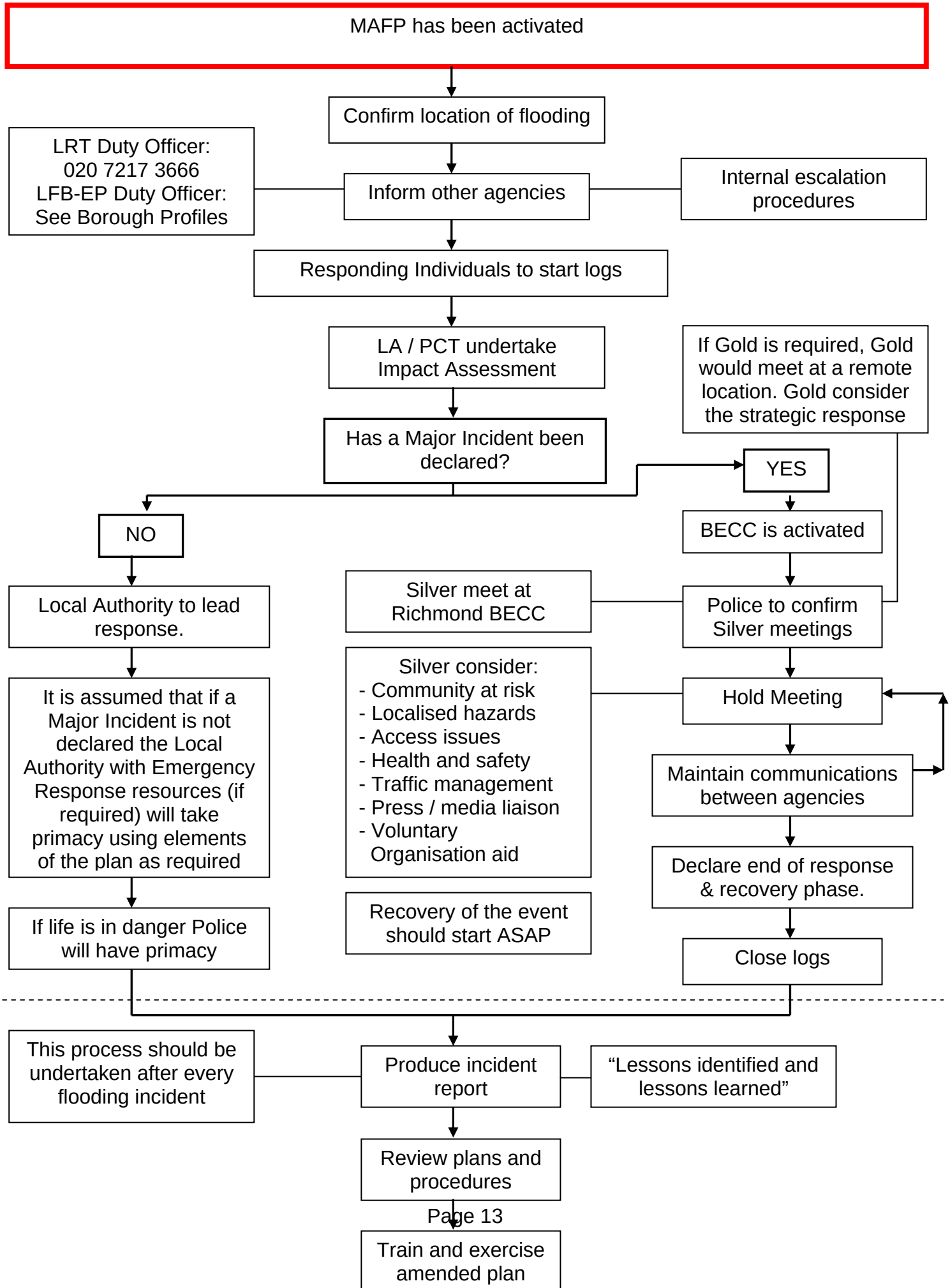
LFB
LONDON FIRE BRIGADE

Quick Reference Section

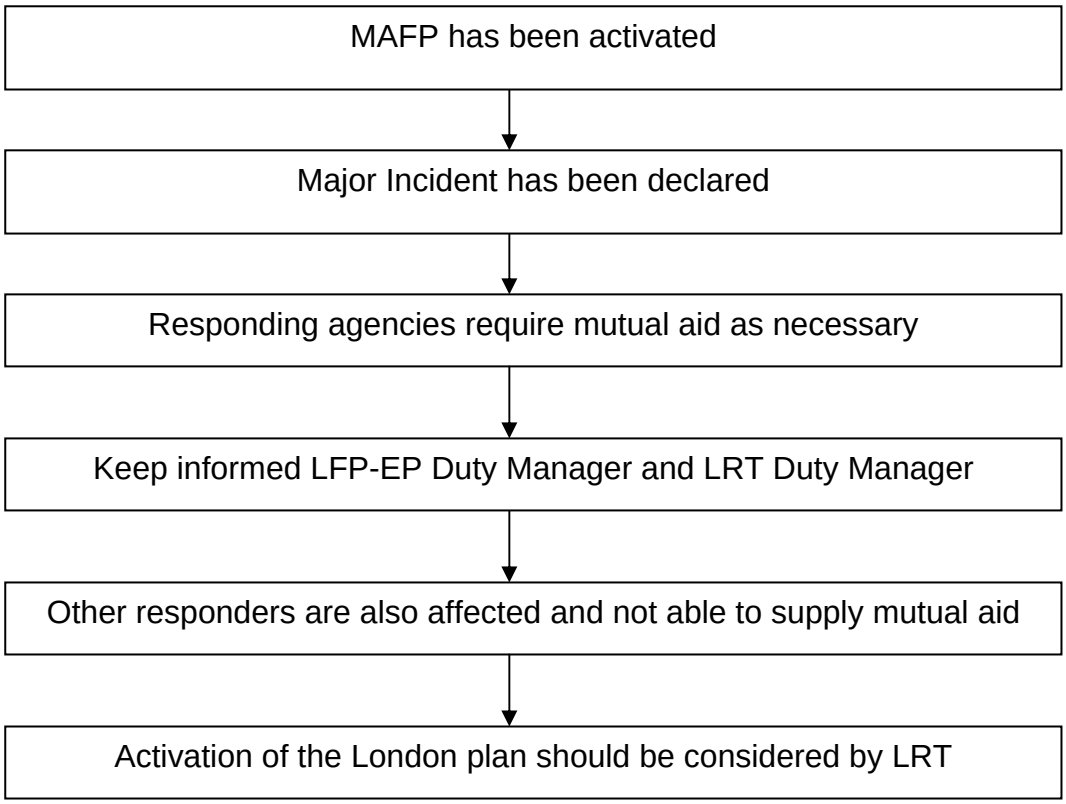
Routes to Trigger Activation of Multi Agency Flood Plan



Actions to be undertaken upon Activation



Escalation Procedures



Document Control

This Multi Agency Flood Plan is prepared, maintained and updated by the **Borough Contingencies Unit**.

The intended audience of this plan is to all Category 1 and Category 2 Responders under the Civil Contingencies Act 2004 and key voluntary response organisations.

This plan will be updated on an annual basis. However new risk assessment, lessons identified from incidents or exercises, restructuring of organisations or changes in key personnel should also prompt updates to the plan. Therefore all responders must advise the team of any changes in circumstances that may materially affect the plan in any way.

Any updates and modifications of this plan will be approved by all members of the Borough Forum:

- London Fire Brigade
- Metropolitan Police Service
- Primary Care Trust
- Local Authority

Notification will be given by the **Borough Contingencies Unit**.

This document has been compiled in consultation with all members of the Borough Forum and the following: Environment Agency, London Ambulance Service, Utilities.

Distribution:

This Multi Agency Flood Plan has been distributed to the following organisations:

- Metropolitan Police Service
- London Fire Brigade
- London Ambulance Service

- London Borough of Richmond upon Thames
- Richmond and Twickenham Primary Care Trust
- Richmond CVS

- Southwest London Boroughs
- London Resilience Team
- London Fire Brigade Emergency Planning

- Environment Agency
- Port of London Authority
- British Red Cross
- St John Ambulance

Version Control:

All changes will be tracked and marked by the **Borough Contingencies Unit**.

Date	Version	Details of amendment	Approved by	Signature
October 08	Draft for Consultation	-		
March 08	1	See Consultation Table		
	2			
	3			

Training and Exercising

It is essential to train responding officers in their roles and responsibilities before they need to use the plan during an exercise or an actual event. Training should take place at appropriate intervals to maintain awareness and to inform responding officers of any amendments.

Exercising the plan and responding officers will identify areas for improvement and ensure that staff are able to deal with a flooding incident, should one occur. Exercises aim to validate the plans, train staff and test procedures.

Such exercises may be internal, or tied into other multi-agency exercises. They should confirm the roles and responsibilities or responding departments / agencies, as well as the adequacy of communications, resources and equipment.

It is recommended that exercising this plan at operational and strategic levels is undertaken whenever there is a major revision, or at least every three years.

Organiser	LB RuT	**Exercise Title**	Exercise Cross Deeper
Date	25th March 2009	**Type**	Tabletop
Relevant lessons / link			
Lesions learnt / Implemented			
Date of Revision			

Organiser		**Exercise Title**	
Date		**Type**	
Relevant lessons / link			
Lesions learnt / Implemented			
Date of Revision			

Organiser		**Exercise Title**	
Date		**Type**	
Relevant lessons / link			
Lesions learnt / Implemented			
Date of Revision			

Table of Contents

Introduction

1. The London Borough of Richmond upon Thames is potentially vulnerable to flooding from three sources.
    - Flooding from the Thames & its tributaries due to high rainfall may significantly affect some properties. A large proportion of the London Borough of Richmond is situated in close proximity to the River Thames, the River Crane and /or the Beverley Brook and may pose a potential risk of flooding to local streets, homes, businesses, schools etc.
    - The London Borough of Richmond upon Thames is also potentially vulnerable to tidal flooding along the Thames as the upstream extent of tidal influence is Teddington Weir.
    - Lastly the London Borough of Richmond upon Thames is vulnerable to surface water flooding. More information can be found in Section 4.

    Due to this potentiality a Multi-Agency Flood Plan is needed. This plan will cover the requirements for a multi-agency borough based flood plan in the London Borough of Richmond upon Thames.

2. This plan covers the requirement for a multi-agency response to a flood incident in the London Borough of Richmond upon Thames. This plan does not have regard for actions to be taken during any other type of emergency. This plan will not include emergency contact numbers and activation arrangements which responding organisations already maintain.

3. This Multi Agency Flood Plan includes a community-level assessment of flood risk which includes risk from rivers, tides, reservoirs and defences. The plan does not include flood risks from foul sewage, burst water mains, and private lakes and canals.

4. This plan covers a borough based response; however floods will not have regard for political and administrative boundaries. As such **this plan must be shared and liaison arrangements made** with other neighbouring boroughs.

Aim and Objectives

5. The aim of this MAFP is to provide a coordinated multi-agency response framework to mitigate the impact of a large-scale flood event in the London Borough of Richmond upon Thames. It provides guidance on a strategic multi-agency response to deliver the following objectives:

6.
    - Prepare key parts of the community susceptible to flooding through the provision of advice and information.
    - To prioritize the identification and required responses to protect the vulnerable within the community
    - To support the Environment Agency in the provision of warnings to communities at flood risk, where technically feasible.
    - Manage precautionary actions to preserve life for the highest impact flood risks.
    - Provide accurate and timely information to public and local business on flood response.
    - Manage the wider impact of borough flooding events to reduce disruption to the utilities, communities and environment.
    - Lead recovery activity to support the recovery of communities and business.
    - Maintain critical services within each organisation as part of business continuity arrangements.

Related and Interdependent Plans

7. There are a number of different plans and protocols relevant in preparing a local flood plan for the London Borough of Richmond upon Thames. It is vital that it is understood how these plans fit with this Multi Agency Flood Plan. Rather than duplicate any of their content within this plan, areas will be clearly signposted.

   Plans and protocols that are related and interdependent to this Multi Agency Flood Plan are listed below, and a figure 3 shows how these plans can be fitted together.

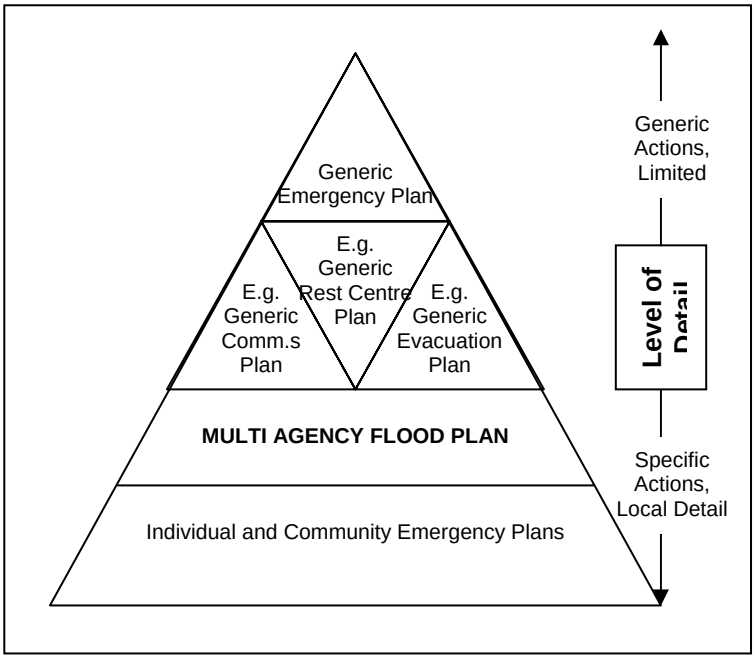
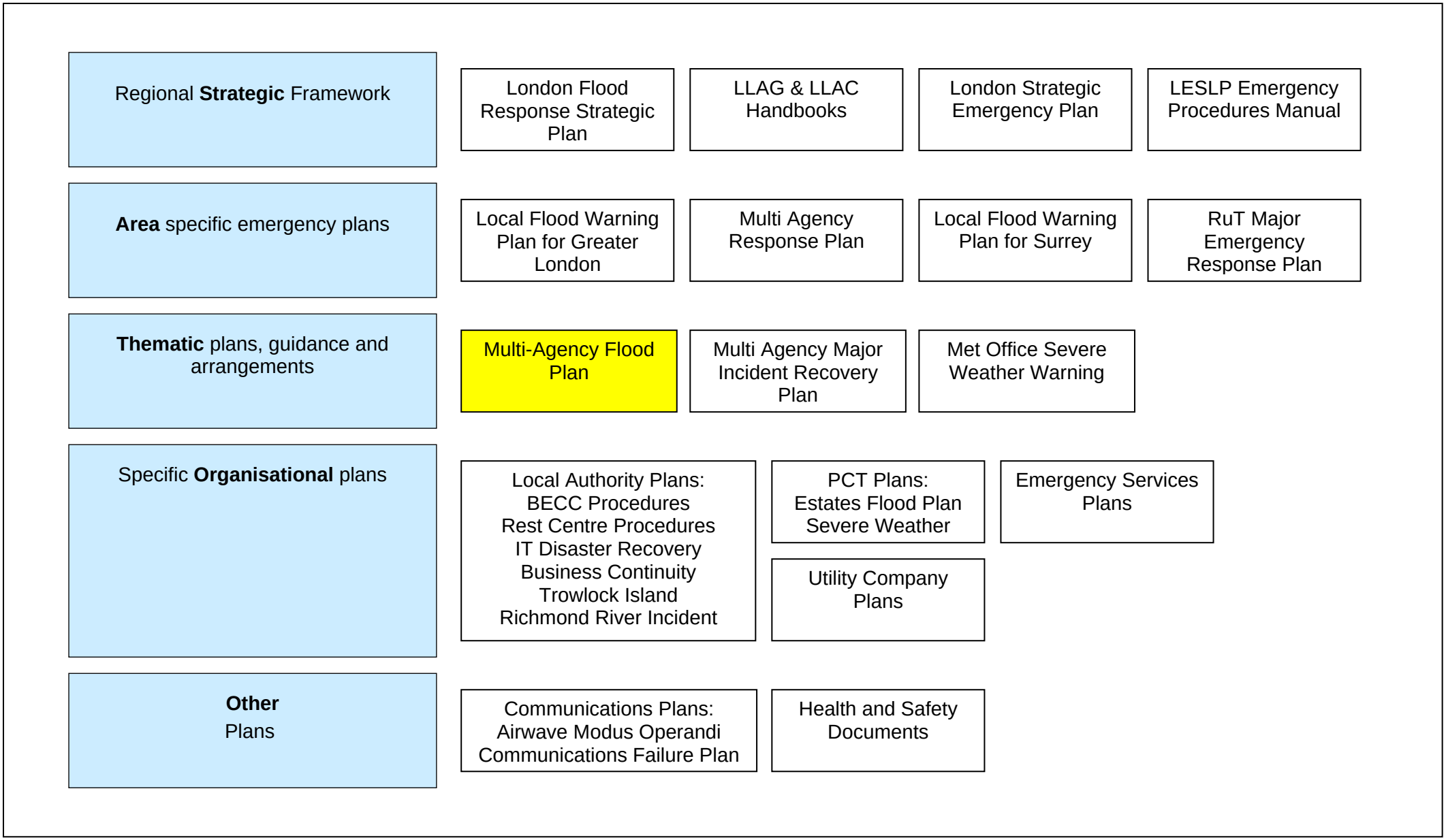


Figure 1 Interdependent Plans

Figure 2 Related and Interdependent Plans

Title	Owned By
London Flood Response Strategic Plan	LRT
LLAG & LLACC handbooks	LFEPA
London Strategic Emergency Plan & Associated Specific Plans	LRRF
LESLP Emergency Procedures Manual	LESLP Panel
Local Flood Warning Plan for Greater London	Environment Agency
Local Flood Warning Plan for Surrey	Environment Agency
Major Emergency Response Plan	LB RuT Borough Contingencies Unit
Multi Agency Major Incident Recovery Plan	LB RuT Borough Contingencies Unit
Met Office Severe Weather Warning	Met Office
BECC Activation & Operating Procedures	LB RuT Borough Contingencies Unit
Rest Centre Activation & Operating Procedures	LB RuT ASS&H
IT Disaster Recovery Plan	SERCO Solutions
Business Continuity Corporate Plans	LB RuT Borough Contingencies Unit
Service Level Business Continuity Plans	LB RuT Service Managers
Trowlock Island Flood Plan	LB RuT Borough Contingencies Unit
Richmond River Incident Plan	LB RuT Richmond BRF
Estates Flood Plan	PCT
Severe Weather Warning	PCT
Utility Company Emergency Plans	Utility Company
Communications Failure Plan	LB RuT Borough Contingencies Unit
Airwave Modus Operandi	LB RuT Borough Contingencies Unit
Local Flood Warning Plan for London	Environment Agency

Figure 3 – Fitting Emergency Plans Together



The Risk of Flooding

Overview

8. There is a long and established history of the Thames flooding with records dating as far back as 1236. Richmond upon Thames is potentially vulnerable to flooding from the following three sources: tidal, fluvial and surface water.

Flooding Threat

9. The danger of fluvial flooding in Richmond upon Thames is as a result of freshwater flows in a tributary that exceeds the capacity of the channel. This can be due to a lack of defence, overtop of the defences, or through a breach in the defences during high flows caused by prolonged or intense rainfall.

10. The three major topographical features of the London Borough of Richmond upon Thames are the River Thames, Beverly Brook and the River Crane. A considerable proportion of the urban area of the borough is situated on relatively low ground adjacent to these river systems, and not surprisingly a considerable proportion of the district is potentially affected by flooding. The Environment Agency estimates that approximately 3,500 properties within the Borough are at 'significant' risk of flooding (greater than a 1.33% (75 year) chance of flooding in any year). A further 5,600 properties are at 'moderate' risk of flooding (less than a 1.33% (75 year) chance of flooding in any year, but greater than a 0.55% (200) year chance of flooding in any year.

11. The risk of tidal flooding from the River Thames arises from increasing tide levels from geological causes, global warming and sea level rise. There is also an increased risk at times of spring tides due to the special threat caused by a surge tide. It is important to recognise that the London Borough of Richmond upon Thames is currently protected to some degree against flooding from the River Thames by Thames Tidal Defences.

12. Surface water flooding as a result of rainwater not being able to drain away at the rate at which it is accumulating can occur anywhere in the London Borough of Richmond upon Thames. Clearly flatter and low lying places are vulnerable, but these areas are not limited to river corridors or floodplains. The cause can be either a blocked drain or very high intensity rainfall of the type most usually associated with thunderstorms. Both causes are relatively unpredictable and so may result in flooding with very little warning. It should be noted that Richmond upon Thames has a number of basement flats.

13. Flooding may also result from high river levels preventing the discharge of drains. Local circumstances may give rise to significant water velocities. Surface water flooding, when unaccompanied by fluvial or tidal flooding, is likely to trigger a major incident only when widespread occurrence causes significant traffic disruption or strains the response capability.

14. Currently a Surface Water Management Plan is being created, and from this, more information will be available to the Multi Agency Flood Plan group to help plan for surface water flood risk. Until this is created, this plan does not have any specific response for a surface water event.

15. The South West London Community Risk Register identifies that the risk rating for tidal flooding is High, and fluvial flooding is very high. It also identifies that surface water will occur from these events and heavy rainfall.

16. An overview map, showing the risk of flooding across the borough of Richmond upon Thames can be found at http://www.richmond.gov.uk/overview_map.pdf and in the Map Section. However, to provide meaningful responses, and for ease of reference, the London Borough of Richmond upon Thames has been broken down into nine areas. These areas have been taken from the Environment Agency's Local Flood Warning Plans, where areas have been delineated largely on the basis of catchments area, and incorporate only those areas in which there is risk of flooding.

Communication Plan

17. Communication will be vital in helping the response to any major flooding event.

Cross Boundary Mutual Aid

18. Where an incident has resulted in the BECC being operated the Media and Communications Unit will work with partner Local Authorities and agencies, in particular the Metropolitan Police, to deliver a clear and unified multi-agency statement and regular follow ups including well into the recovery phase.

Media

19. The Local Authority and Police Communications and Media Teams need to ensure there is a single message in relation to the response. Where other agencies are involved, their views on the media strategy will need to be considered. The Local Authority will usually take the lead media role in relation to Recovery.

General Public

20. Information leaflets can be found on the Environment Agency website and in Annex A of this document which give guidance on before, during and after flooding. The Environment Agency states that anyone who is at risk of flooding is advised to develop a flood plan and make sure everyone is aware of what to do should the need arise to use it.

21. In the instance of a severe flooding event the Metropolitan Police, with consultation with the Council, will provide up to date and consistent information on CommunitySafe. Community TV will also be used to inform the community of different flood warnings. The Council website will be important for these messages as well as the setting up of an information line via the Contact Centre.

Public Helpline

22. The Environment Agency has a 24hour telephone information service called Floodline. Contact details of this service can be found in the Environment Agency leaflets in Annex A. Customers trying to contact the council should call the council contact centre number.

Vulnerable People

23. More information on vulnerable persons can be found in the Vulnerable People Section. It will be the Emergency Services and Incident Controllers decision as to the support to be given to these persons on a priority basis. Any support will be carried by Adult and Community Service.

Schools

24. All schools have been asked to sign up to the Environment Agency Floodline Warnings Direct. All decisions made by the Head Teachers must be recorded and coordinated by Children's Services. It is imperative that Children's Services keep the BECC updated as to whether schools are evacuated, open or closed. The Council's BECC and Incident Controller are on hand to assist with evacuation of any schools affected by flooding or those where pupils are retained for any length of time.

Faith/Minority Groups

25. Where necessary faith groups and minority groups may be asked to assist with communications to their communities, such as radio stations for Muslim

population. This will enable appropriate religious and ethnic community leaders to ensure warning and information messages are passed to the community and to ensure customs and beliefs are respected.

Door Knocking

26. As can be seen from figure 4, literal door knocking may not be successful due to constraints on time and staff. Therefore we cannot confirm that Richmond Council will knock on doors in the flood zone areas.

27. Due to staffing constraints, if we choose to undertake door knocking we may do so by knocking on one door of a road and asking those persons to inform the rest of their street. We may prioritise vulnerable persons (if applicable) in a flood zone area. We suggest that those people in flood zones sign up to the Environment Agencies Floodline Warnings Direct as they will then be informed of any potential threats.

28. The only time door knocking will certainly be used is to communicate with vulnerable people in circumstances of a public network failure.

29. Other forms of communication that may be used are:
    - Loudspeaker
    - Media
    - Signs

Public Network Failure

30. This plan does not take into account a public network failure, but should the public network fail, contingency arrangements can be found in the Communications Failure Plan held by the Borough Contingencies Unit. If the public network failed, the police have use of airwave radios, as do the local authority and the fire brigade. The PCT has use of a satellite phone which is only used for occasions such as this.

Figure 4 **Door Knocking**

If:
D = number of doors to knock on
T= time spent at each door in minutes
S= number of staff available

((D x T) / (S / 2)) / 60 = hours needed to knock on all doors **EXCLUDING** time to collate staff, time to reach area, breaks, time to move between houses/roads etc.

[Note: staff numbers are divided by 2 because of safe working policy – if this is not relevant take this division out]

Example:

D= 14,974 doors T= 7 mins/door S= 239

((14,974 x 7) / (239 / 2)) / 60 =
((104,818) / (119.5)) / 60 =
(104,818 / 119) / 60 =
[rounded down to 119 because of whole people]
880.82352 / 60 = 14.68 hours

Plan Activation – Thresholds and Triggers

Planning Assumptions

31. It is important to be clear about the planning assumptions that are being used by everybody to ensure consistency in approach. The definitions of such assumptions are listed below:

Tidal Flood Warning:	Assume approximately 2-12 hours warning of flooding. This does not take into account breaches in existing defences where there is likely to be no warning. Assume approximately 6 hours warning for overtopping of tidal defences.
Fluvial Flood Warning:	Assume approximately 2 hours but for many areas there may be little or no warning.
Surface Water:	Assume no warnings from the Environment Agency. Potential Met Office warnings of heavy rainfall but timeframes are unpredictable.
Breaches:	Can be categorised as 'immediate impact'. Breaches will lead to a Severe Flood Warning and have the potential to constitute a Major Incident.
Water Rescue:	Assumes the use of only emergency services' boats, helicopters and high-clearance vehicles (not self-presenting voluntary operators whose standard of training and equipment are unknown).
Infrastructure:	This plan does not take into account damage or failure of power stations, road and rail links specifically.

Thresholds

32. On receipt of a Flood Watch or a Tidal Flood Warning responding agencies should monitor the weather and weather warnings. On receipt of a Fluvial Flood Warning or a Severe Flood Warning this plan should be activated. Further information ca be found in the Quick Reference Section at the beginning of this plan.

33. Information about each of the Environment Agencies flood risk definitions can be found in the Quick Reference Section, Annex A and at the following website: http://www.environment-agency.gov.uk/homeandleisure/floods/31618.aspx

6.3 Trigger Points for Plan Activation

34. The flood plan will require activation if:
    - On receipt of an Extreme Rainfall Alert for the borough area
    - On receipt of a fluvial Flood Warning
    - On receipt of a Severe Flood Warning
    - A Flood Warden on Trowlock Island phones the Borough Contingencies Unit concerned
    - There is an indication flooding is about to or is occurring
    - The BCU is informed top down to activate their Flood Plan.

35. Overall responsibility for activating the flood plan will lie with either the Police or the Local Authority's Borough Contingency Manager, (or team in their absence). Alternatively activation could occur from the Borough Emergency Controller, if the BECC is open.

36. A diagram showing plan triggers can be found in the Quick Reference Section, page 5.

Actions, Roles and Responsibilities

Activation and Response

37. Response to a flooding incident will require a multi-agency approach, and liaison with all blue light responders, the environment agency and other stakeholders as required is essential. Upon activation of the plan all relevant organisations should be notified and meet at a pre-arranged safe rendezvous point (RVP) to establish the multi agency coordinating group. Unless stated otherwise the RVP is at: Borough Emergency Control Centre.

38. Should a major incident be declared the Police will chair any silver and gold meeting in response to flooding incident with input from all responding agencies. If search and rescue activities are being undertaken the chair will stay with the Police, but the LFB will advise.

Escalation of Response

39. A major incident will be declared if the incident requires implementation of special arrangements by one or more of the emergency services and will generally include the involvement, either directly or indirectly, of large numbers of people. For example:
    - Rescue and transportation of a large number of casualties
    - Large-scale combined resources of Police, LFB and LAS
    - Mobilisation and organisation of the emergency services and support services

40. If a Major Incident is declared a Silver Coordinating Group will be established, with Borough Gold being established as required. Representatives from the following organisations should be contacted and attend silver meetings:
    - Metropolitan Police
    - London Fire Brigade
    - London Ambulance Service
    - Richmond Council
    - Other specialist advisors e.g.:
        - PCT
        - EA
        - Thames Water
        - Red Cross etc.

41. A template situation report and silver coordinating group agenda can be found in Annex E and F.

Further Escalation

42. A larger incident may involve the activation of London's Strategic Coordination Group (SCG) which would have Police lead as Gold during the response phase and would include activation of the London Strategic Flood Response Plan.

43. In these circumstances our primary objective would be to inform the LLACC that we have activated our Borough Emergency Control Centre. In addition to this, where possible, we would inform the LRT and the LFB-EP of this activation in terms of a flooding incident. See diagram in Quick Reference Section for further information.

Health and Safety Considerations

44. Health and safety considerations and information for responders are held by each of the responding agencies. These considerations are not in this plan; responders needing more information should speak to their own agency.

45. Health and safety information for the public can be found in the Environment Agency leaflets, which can be found in Annex A.

Roles and Responsibilities

46. The different agencies responding to a flood event will carry out their duties as stated in the LESLP Procedure Manual (with focus on Annex E of said document). The following pages state the different responding agencies responsibilities with regards to a flood event.

Metropolitan Police Service (MPS)

LESLP Guidance states the MPS have the following responsibilities:

- Saving of life
- Coordination of the emergency services, local authorities and other organisations
- Secure, protect and preserve the scene and control sightseers and traffic through the use of cordons
- Investigation of the incident and obtaining and securing of evidence
- Collection and distribution of casualty information
- Identification of the dead on behalf of HM Coroner
- Prevention of crime
- Family liaison
- Short term measures to restore normality
- In the event of warning and informing communities at risk of flooding not being effective, where practicable, assistance will be given

When the Multi Agency Flood Plan is activated, if **it is not** a Major Incident the MPS will liaise with the local authority and other responding services; if **it is** a Major Incident, the MPS will lead the response and organise Silver Meetings.

London Fire Brigade (LFB)

LESLP Guidance states the LFB have the following responsibilities:

- Life saving through search and rescue
- Fire fighting and fire prevention
- Rendering humanitarian services
- Detection, identification, monitoring and management of hazardous materials and protecting the environment
- Provision of qualified scientific advice in relation to HAZMAT incidents via their scientific advisors
- Salvage and damage control
- Safety management within the inner cordon
- To maintain emergency service cover throughout the LFB area and return to a state of normality at the earliest time
- In a flood event assistance will be given to relevant agencies, particularly the local authority, to minimise the effects of major flooding on the community
- In a flood event assistance may be given with pumping operations, depending on the situation, with priority being given to calls where flooding involves a risk to life,

or fire or explosion and to calls from hospitals, residential homes for the elderly, public utilities and food storage depots

When the Multi Agency Flood Plan is activated, and **it is** a Major Incident, the LFB will attend meetings and liaise with other agencies to prioritise their response.

London Ambulance Service (LAS)

LESLP Guidance states the LAS have the following responsibilities:

- Save life
- Provide treatment, stabilisation and care of those injured at the scene
- Provide appropriate transport, medical staff, equipment and resources
- Establish an effective triage sieve, triage sort system and to establish a safe location for casualty clearing
- Provide a focal point at the incident for all NHS and other medical resources
- Provide communication facilities for NHS resources at the scene, with direct radio links to hospitals, control facilities and any other agency as required
- Nominate and alert the receiving hospitals
- Provide transport to the incident scene for the Medical Incident Officer (MIO), mobile medical/surgery teams and their equipment
- Arrange the most appropriate means of transporting those injured to the receiving and specialist hospitals
- Maintain emergency cover throughout the LAS area and return to a state of normality at the earliest time
- Act as a portal into the wider health services including the Health Protection Agency Regional Health Emergency Planning Advisors, and in the event of a CBRN incident advise on the convening of the Health Advisory Team (HAT) which will be able to advise and lead as far as health advice is concerned.
- In a flood event the LAS may become involved in the evacuation of vulnerable persons and supporting the local authority.
- It should be noted that the LAS does not possess any waterborne response capability.

British Transport Police

BTP is the police force for the railways, providing a policing service to rail operators. They have a responsibility to deliver a safe railway that is free from disruption and the fear of crime.

When the MAFP is activated the BTP will liaise with other agencies, assisting with evacuation of premises if necessary, paying particular attention to vulnerable people, and assisting in securing premises.

BTP will be considered as a member of the Recovery Team.

Richmond and Twickenham Primary Care Trust (RT PCT)

RT PCT has a responsibility to maintain clinical services across the borough. It has a responsibility to maintain its emergency plans, including building flood plans, and business continuity plans.

When the MAFP is activated the PCT will:

- Follow internal escalation procedures
- Link with Local Authority with regard for identifying vulnerable people
- Link with LAS with regard to potential primary care evacuation
- Seek assistance from emergency responders should evacuation be required
- Inform Health Care organisations at risk to invoke appropriate business continuity measures
- In liaison with the Health Protection Unit, brief incident controls and general public on the health risks associated with the flooding incident.
- Once flooding has receded the PCT will obtain statistics of human cost to inform borough wide plans. The PCT will be involved with Recovery group.

Environment Agency (EA)

The EA are the lead public body for protecting and improving the environment. They have a responsibility to maintain their flood defences and collect flood data for historical records and to enhance future mapping. They have a responsibility to issue alerts of a flood event (not surface water flooding). Once flooding has receded they will repair their damaged defences.

Met Office

The Met Office offers an Emergency Support Service to local authorities. It can give advice from teams of Met Office forecasters, specialist scientists and advisors, on the interpretation and impact of the weather during an emergency. This service is coordinated through the Met Office's team of regionally-based Public Weather Service (PWS) Advisors who can be called upon to provide advice at a strategic command and control centre. This service is provided to aid the work of incident management teams in dealing with a variety of environmental emergency situations such as flooding, chemical release, radiological incidents, large fires, biological hazards and storm tides.

To access the service during an incident email emergencysupport@metoffice.gov.uk. If you have not received a response within 1 hour contact the Met Office Customer Centre. You will be provided with a hyperlink, username and password to enable you to access the service. You do not need to take any further action unless an incident occurs.

Port of London Authority (PLA)

The PLA feel a severe flood is very unlikely thanks to the Thames Barrier & therefore do not have a specific flood plan.

In the case of a severe prolonged flood, priority would be Safety of Navigation and 'loose' boats would require to be secured, if it was safe to do so.

Royal National Lifeboat Institute (RNLI)

Specific involvement in flood rescues will be coordinated through the MCA in direct relation to direct 999 calls. If whole streets have been flooded a more systematic searching of properties may be required and RNLI requested to assist. A letter detailing this can be found in Annex M.

National Grid
The National Grid has a responsibility to maintain its supplies to its customers.

When the MAFP is activated the National Grid will cooperate with the responding agencies to isolate supplies and make safe as necessary. They will reconfigure supplies where possible and invoke mutual aid plans.

When flooding has receded they will re-establish supplies and return to service as usual.

EDF Energy Network
EDF Energy Network is responsible for the electricity distribution network. They have a responsibility to operate and manage a safe electricity network and then after a flooding event to restore to normal the electricity network as quickly and safely as possible after flooding.

If distribution plant and equipment, cables and lines are damaged by flood water then once the flood waters recede they will carry out works to restore supplies and carry out repairs as quickly and safely as possible.

The 'EDF Energy Networks – Draft for Flood Plan' can be found in Annex K.

British Telecomm
When the MAFP is activated BT will liaise with responding agencies. All actions will be managed through their Incident Management Response. Customer service prioritisation is an important part of the process to ensure ongoing communications.

Thames Water
Thames Water will respond to reports of foul sewage flooding and any of their infrastructure at risk.

Transport for London
When the MAFP is activated TfL will liaise with responding agencies, and coordinate their response with the agencies. They will negotiate with the other agencies as to how diversion routes will be implemented. TfL will also liaise with MPS to determine a joint response under the Benbow scheme.

The 'TfL Buses Draft Borough Flood Plan' can be found in Annex L.

Red Cross
The Red Cross would be asked to assist by both the London Borough of Richmond

upon Thames and the London Ambulance Service.

They can offer help to the LAS by:
- Ambulance support for low category 999 calls
- Patient transport services to assist with evacuations

They can offer help to the Local Authority by:
- Rest Centre emotional support
- Rest Centre equipment
- Rest Centre clerical and paperwork support
- Movement of vulnerable groups to Rest Centres
- Temporary accommodation and movement to Rest Centres (via ERU)
- Door to door vulnerability checks – as in Gloucester floods
- Food parcel delivery – as in Gloucester floods

<u>London Borough of Richmond upon Thames</u>

LESLP Guidance states the LA have the following responsibilities:
- Providing support for the emergency services;
- Providing support and care for the local and wider community;
- Using resources to mitigate the effects of an emergency
- Leading the recovery stage.
- Local authorities have a statutory duty to have arrangements in place to respond effectively to an emergency. This includes:
  - Maintaining normal day-to-day services to the local community during a major incident.
  - Employing emergency planning officers who are able to plan for and coordinate the local authority response to such events.

During the recovery period and the return to normality the LA will draw upon a wide range of skills and resources drawn from its day-to-day operations such as:
- Technical and engineering advice
- Building control
- Highways and services
- Public health and environmental issues
- Provisions of reception centres
- Rehousing and accommodation needs
- Transport
- Social services
- Psychosocial support
- Helplines
- Welfare and financial needs

The council is also responsible for the following environmental issues:

Animal Carcasses:	The council would be responsible for the disposal of animal carcasses found on council property. Domestic animals would be the responsibility of the owner.
Personal Property:	The council should facilitate recycling and waste collection for flood damaged goods as part of its emergency response and recovery.
Silt:	The council will take responsibility for clearing Silt on public land but not on private property.
Contaminated Sandbags:	The council will dispose of its own contaminated sandbags,

but due to the council's policy not to supply sandbags to the public, the council will not be held responsible for personal sandbags.

When notice is received of potential flooding, notice should be sent to the Chief Executive, Council Leader, Deputy Leader and affected Ward Councillors via email. They should be kept informed throughout any flood event. A template situation report can be found in Annex E. Currently a flood plan for the council offices in Twickenham is being developed. As it is developed links to said document should be inserted here.

Council employees should be kept up-to-date with any flood event, and this should be done through the frequent updating of RIO. Out of Hours it may be necessary for Service managers to contact their staff at home to update them the incident and regarding the need for them to support or maintain the continuity of service provision.

Please note the local authority can call a Major Incident.

Specific Roles and Responsibilities of Organisations during a Flooding Event

Organisation	Risk	Preplanning	Emergency Response		Notes	Recovery
			Minor Flood (Medium Consequences)	Major Flood (High Consequences)		
Metropolitan Police Service (MPS)	Fluvial flooding Tidal flooding Surface water flooding	Legal responsibilities as per civil contingencies act. Specifically:- Maintain business continuity awareness Liaison with environment agency at local and pan-London level on risk assessment/ current planning requirements Staff training and awareness Testing and exercising of major incident procedures	Attendance and assessment at scene Assist other agencies by co-ordination of incident, Especially cordon control Traffic control and diversion Evacuation/invacuation as per evaluation. Assist EA where necessary with warning and informing arrangements Security of property	Generic LESLP response Using objectives as per major incident procedure Specifically saving of life Evacuation/invacuation Cordoning Traffic control and diversion Warning and informing Security of scene- nb iconic sites	Major incident declaration to be made by blue light or local authority personnel. Major incident procedure – Command and control-provision of gold co-ordination chair and location Consideration as to Casualty bureau etc Use of gold media cell.	
London Fire Brigade (LFB)	Fluvial flooding Tidal flooding Surface water flooding	Standard operational response to a special service. Responsibilities under the Fire and Rescue Services Act 2004 LESLP guidance. LFB business continuity plans.	Fire fighting and fire prevention. Rendering humanitarian services. Detection, identification, monitoring and management of hazardous materials and protecting the environment. Provision of qualified scientific advice in relation to HAZMAT incidents via their scientific advisors. Salvage and damage control. Safety management within the inner cordon. To maintain emergency service cover throughout the LFB area and return to a state of normality at the earliest time. In a flood event assistance will be given to relevant agencies, particularly the local authority, to minimise the effects of major flooding on the community. In a flood event assistance may be given with pumping operations, depending on the situation, with priority being given to calls where flooding involves a risk to life, or fire or explosion and to calls from hospitals, residential homes for the elderly, public utilities and food storage depots.	(As for minor flood) Life saving through search and rescue The LFB will attend meetings and liaise with other agencies to prioritise their response.		Assist other agencies to minimise the impact on the community.
London Ambulance Service (LAS)	Fluvial flooding Tidal flooding Surface water flooding		Save life Provide treatment, stabilisation and care of those injured at the scene Provide appropriate transport, medical staff, equipment and resources Establish an effective triage sieve, triage sort system and to establish a safe location for casualty clearing Provide a focal point at the incident for all NHS and other medical resources Provide communication facilities for NHS resources at the scene, with direct radio links to hospitals, control facilities and any other agency as required Nominate and alert the receiving hospitals Provide transport to the incident scene for the Medical Incident Officer (MIO), mobile medical/surgery teams and their equipment Arrange the most appropriate means of transporting those injured to the receiving and specialist hospitals Maintain emergency cover throughout the LAS area and return to a state of normality at the earliest time			

			Act as a portal into the wider health services including the Health Protection Agency Regional Health Emergency Planning Advisors, and in the event of a CBRN incident advise on the convening of the Health Advisory Team (HAT) which will be able to advise and lead as far as health advice is concerned. In a flood event the LAS may become involved in the evacuation of vulnerable persons and supporting the local authority. It should be noted that the LAS does not possess any waterborne response capability.			
British Transport Police	Fluvial flooding Tidal flooding Surface water flooding		BTP is the police force for the railways, providing a policing service to rail operators. They have a responsibility to deliver a safe railway that is free from disruption and the fear of crime. When the MAFP is activated the BTP will liaise with other agencies, assisting with evacuation of premises if necessary, paying particular attention to vulnerable people, and assisting in securing premises. BTP will be considered as a member of the Recovery Team.			
Richmond and Twickenham Primary Care Trust (RT PCT)	Fluvial flooding Tidal flooding Surface water flooding	RT PCT has a responsibility to maintain clinical services across the borough. It has a responsibility to maintain its emergency plans, including building flood plans, and business continuity plans.	Follow internal escalation procedures Link with Local Authority with regard for identifying vulnerable people Link with LAS with regard to potential primary care evacuation Seek assistance from emergency responders should evacuation be required Inform Health Care organisations at risk to invoke appropriate business continuity measures In liaison with the Health Protection Unit, brief incident controls and general public on the health risks associated with the flooding incident.			Once flooding has receded the PCT will obtain statistics of human cost to inform borough wide plans. The PCT will be involved with Recovery group.
Environment Agency (EA)	Fluvial flooding Tidal flooding Surface water flooding	Prepare and maintain London Local Flood Warning Plan Advise on development proposals; update flood risk maps; support LRF flood risk assessments; maintain watercourse capacity; maintain flood management structures.	Issue warnings; monitor catchments; operate defences; support LA's and Emergency Services	(As for minor flood)		Support LA's and community as resources allow Repair any damaged defences. Flood data collection for historical records and to enhance future mapping.
Met Office	Fluvial flooding Tidal flooding Surface water flooding		The Met Office offers an Emergency Support Service to local authorities. It can give advice from teams of Met Office forecasters, specialist scientists and advisors, on the interpretation and impact of the weather during an emergency. This service is coordinated through the Met Office's team of regionally-based Public Weather Service (PWS) Advisors who can be called upon to provide advice at a strategic command and control centre.			
Port of London Authority (PLA)	Fluvial flooding Tidal flooding Surface water flooding	The PLA feel a severe flood is very unlikely thanks to the Thames Barrier & therefore do not have a specific flood plan.		In the case of a severe prolonged flood, priority would be Safety of Navigation and 'loose' boats would require to be secured, if it was safe to do so.		Repair and maintenance of navigation aids and other river works. Re-establish routine navigation safety regime.
Royal National Lifeboat Institute (RNLI)	Fluvial flooding Tidal flooding Surface water flooding		Specific involvement in flood rescues will be coordinated through the MCA in direct relation to direct 999 calls. If whole streets have been flooded a more systematic searching of properties may be required and RNLI requested to assist.			

National Grid	Fluvial flooding Tidal flooding Surface water flooding		The National Grid has a responsibility to maintain its supplies to its customers. When the MAFP is activated the National Grid will cooperate with the responding agencies to isolate supplies and make safe as necessary. They will reconfigure supplies where possible and invoke mutual aid plans.			When flooding has receded they will re-establish supplies and return to service as usual.
EDF Energy Network	Fluvial flooding Tidal flooding Surface water flooding		EDF Energy Network is responsible for the electricity distribution network. They have a responsibility to operate and manage a safe electricity network and then after a flooding event to restore to normal the electricity network as quickly and safely as possible after flooding.			If distribution plant and equipment, cables and lines are damaged by flood water then once the flood waters recede they will carry out works to restore supplies and carry out repairs as quickly and safely as possible.
British Telecom	Fluvial flooding Tidal flooding Surface water flooding		When the MAFP is activated BT will liaise with responding agencies. All actions will be managed through their Incident Management Response. Customer service prioritisation is an important part of the process to ensure ongoing communications.			
Thames Water	Fluvial flooding Tidal flooding Surface water flooding		Thames Water will respond to reports of foul sewage flooding and any of their infrastructure at risk.			
Transport for London	Fluvial flooding Tidal flooding Surface water flooding		When the MAFP is activated TfL will liaise with responding agencies, and coordinate their response with the agencies. They will negotiate with the other agencies as to how diversion routes will be implemented. TfL will also liaise with MPS to determine a joint response under the Benbow scheme.			
Red Cross	Fluvial flooding Tidal flooding Surface water flooding		Ambulance support for low category 999 calls Patient transport services to assist with evacuations Rest Centre emotional support Rest Centre equipment Rest Centre clerical and paperwork support Movement of vulnerable groups to Rest Centres Temporary accommodation and movement to Rest Centres (via ERU) Door to door vulnerability checks Food parcel delivery			
London Borough of Richmond upon Thames	Fluvial flooding Tidal flooding Surface water flooding	Up to date vulnerable persons and sites database Pre-determined rest, reception and media centres Pre-multi-agency planning re. RVPs, transport routes etc.	Activation of BECC and strategic group + leader and ward members Co-operation with emergency services andEA to co-ordinate the response Liaison with utility and transport companies especially water company to ensure provision of clean drinking water to residents Transport of public / evacuees to rest centres	Activation of BECC and strategic group + leader and ward members Co-operation with emergency services and EA to co-ordinate the response Warning and informing the public Activation of information help-line for public Activation of staff		Removal of mud / debris Structural and condition surveying of council properties damaged by the flooding; remedial action to repair such properties Consultation with health authorities on hygiene and environmental health

		Pre-arranged communication strategy – what should members of the public do/go Updated information on council web site Pre-arranged information help line and trained staff Pre-arranged help line for staff – (should they come in to work or not – is it safe?) Review of council properties at risk Incorporate this risk into the Business Continuity planning process.	Provision and staffing of rest / reception centres and associated services Provision of anti-flooding measures (e.g. sandbags) and workforce to construct and maintain mitigating measures	Emergency information line Liaison with utility and transport companies especially water company to ensure provision of clean drinking water to residents Provision of information centre / media centre Co-ordinate response from faith and voluntary groups Transport of public / evacuees to rest centres Provision and staffing of rest / reception centres and associated services Providing signage for road closures Maintaining traffic flows (in conjunction with police) especially for emergency services and repair effort Provision of anti-flooding measures (e.g. sandbags) and workforce to construct and maintain mitigating measures Assisting EA in repairing river defences (between high tides) Provision of emergency lighting / generators		issues in affected areas Provision of temporary or longer-term accommodation for residents made homeless by the flooding Assisting residents in removal of damaged furniture and household goods Assisting in rearranging Education of pupils affected by school closures Invoking council's business recovery plan if council premises are affected Provision of counselling and other advice to affected/upset residents

Vulnerable People

47. The guidance Emergency Preparedness states that it is not easy to define in advance and for planning purposes who are the vulnerable people to whom special consideration should be given in plans. Those who are vulnerable will vary depending on the nature of the emergency. It then states that for planning purposes there are broadly three categories that should be considered:

    - Those who, for whatever reason, have mobility difficulties, including people with physical disabilities or a medical condition and even pregnant women;
    - Those with mental health difficulties;
    - And others who are dependent, such as children.

48. Richmond Borough Contingencies Unit would broaden and clarify this further as:

    - Those who have mobility limitations or are supporting someone with mobility limitations (Disabled, the ill & parents nursing infants)
    - Those that have limited ability to comprehend a risk / hazard or cannot understand a situation because of language issues.
    - Those passively at risk
    - Those displaced in unfamiliar surrounds without friends and family or support nearby

49. Below is a list of those identified to hold information on potentially vulnerable people:
    - Local Auhority
        - Social Services
        - Childrens Services
        - Community Safety Teams
        - Housing and Partner Organisations
        - Transport
    - Utilities
    - Voluntary Sector
    - Health
        - GP's
        - Pharmacists
        - PCT
        - Mental Health Trust
        - Acute Hospitals
        - Independent Health

50. The most up-to-date local authority vulnerable people lists can be obtained 24 hours a day from trained Council staff. The Borough Contingencies Unit and Careline have contact details of these staff.

51. Utility lists can be obtained by the Local Authority Social Services contacting the utilities via the number found in the Contact List.

52. Health lists can be obtained via the Duty Director of Richmond and Twickenham Primary Care Trust. This contact information can be found on the Local Authority Pocket Contact List.

53. If it is necessary to share information with other responders, in relation to the welfare of any individuals on the vulnerable persons list, then this will be authorised.

54. The Welfare Response Plan identifies all the different plans within the council and how they coincide with each other.

Key Infrastructure

55. Annex J identifies key sites and infrastructure in the London Borough of Richmond upon Thames. Below lists example locations, but is not an exhaustive list.

    - Police stations
    - Fire stations
    - Hospitals / A & Es
    - Local authority Offices/ Depots
    - Transport Links

56. Trowlock Island is vulnerable to flooding, but there is a separate Plan for this island currently being developed. The Borough Contingencies Unit holds this plan.

Evacuation and Sheltering of People

57. Evacuation is by no means an easy option and may not be the safest option for the majority of those potentially at risk. It may be safer to advise people to seek refuge in the upper storeys of a building rather than run the risk of being overcome by the flood waters.

58. The decision to evacuate an area affected by the flooding will be the responsibility of the police. However evacuation will prompt Council action around providing a Rest Centre, if not already set up, and the transportation of evacuees. It will be for the Incident Controller to make decisions regarding support to be given to those persons who refuse to be evacuated.

59. Further information on the evacuation process and transportation of evacuees can be found in the Generic Emergency Plan. Specific mass evacuation plans are currently under development.

60. Further information on the sheltering of evacuees and procedures can be found in the London Borough of Richmond upon Thames Rest Centre Activation and Operating Procedures. These plans include contacts of internal and external transport contractors to assist in an emergency. Rest Centres are not identified in this plan.

61. The British Red Cross and Richmond upon Thames have a Memorandum of Understanding for dealing with the initial impact upon the community for any incidents and then potentially assisting with the staffing of rest centres.

62. Evacuation routes and traffic management arrangements are not specified in this plan as these arrangements will depend on the flood situation itself. However, evacuation routes and traffic management will be discussed in the initial phases of the response.

63. A resources list can be found in Annex I of this document.

64. For further information please see London Borough of Richmond upon Thames Multi Agency Incident Recovery Plan.

Recovery

65. The purpose of providing recovery support is to assist the affected community towards management of its own recovery. It is recognition that where a community experiences a significant emergency, there is a need to supplement the personal, family and community structures which have been disrupted.

66. The recovery phase of a flooding incident must begin as soon as practicably possible and run along side flood response operations. Following the end of the emergency response phase to a flooding incident, the BECC will decide when it is appropriate to stand down. At this point control will officially be handed back to departments to run as 'business as normal' or to the designated recovery team as required.

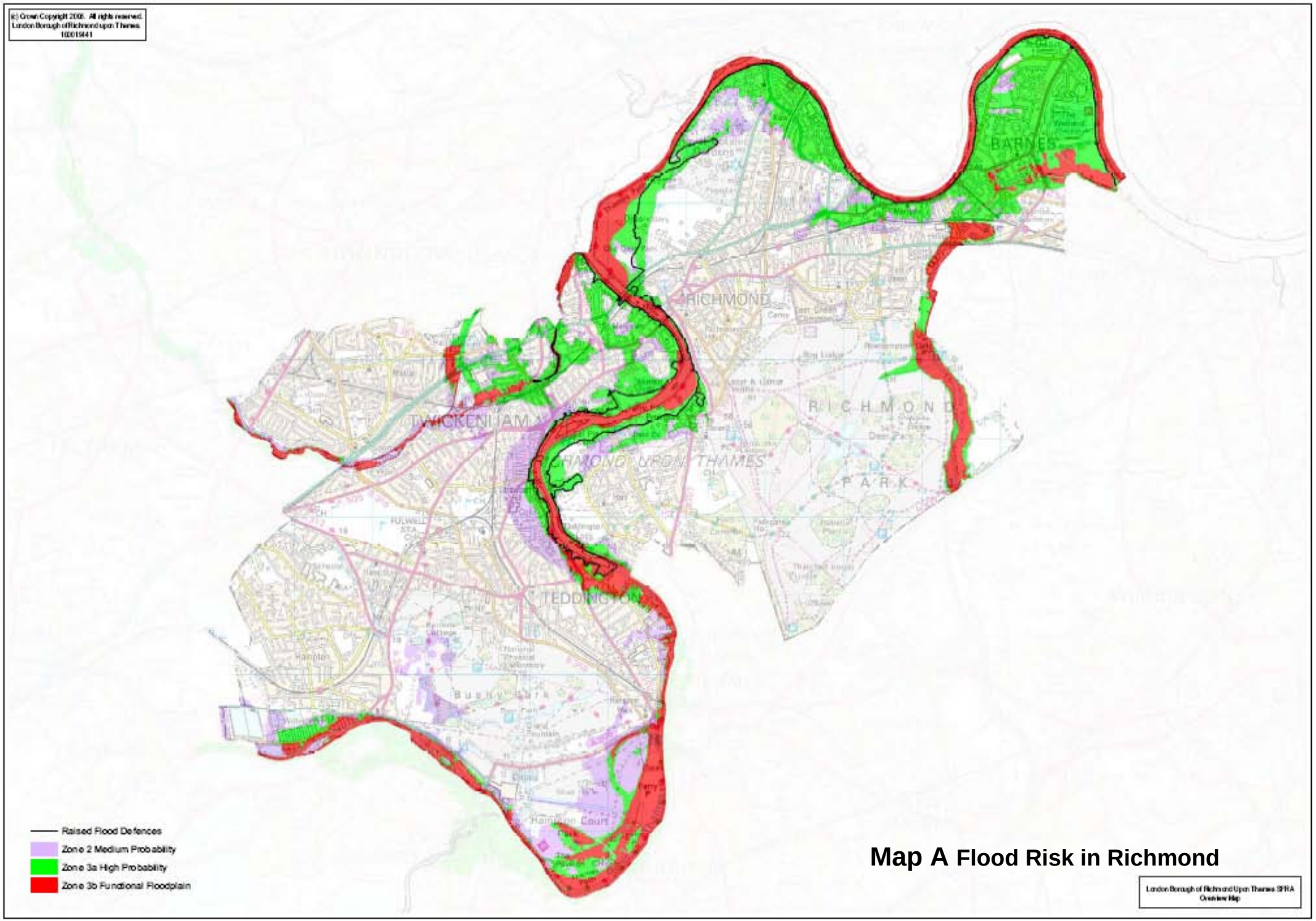
67. Recovery is more than simply the replacement of what has been destroyed and the rehabilitation of those affected. It is a complex social and developmental process rather than just a remedial process. The manner in which recovery processes are undertaken is critical to their success. Recovery is best achieved when the affected community is able to exercise a high degree of self-determination.

68. Common issues following flooding include:
    - Clean up and waste disposal
    - Repairs to public infrastructure – schools, buildings, roads, bridges
    - Restoration of power, communications and water
    - Domestic and business insurance needs
    - Displaced businesses
    - Humanitarian assistance needs including
        - Homeless/ displaced residents
        - Psychological impacts
    - Environmental impacts

69. Please refer to the Multi-Agency Major Incident Recovery Plan held by the Borough Contingencies Unit for further details on recovery.

70. It should be noted that the Recovery stage may last much longer than the Response phase.

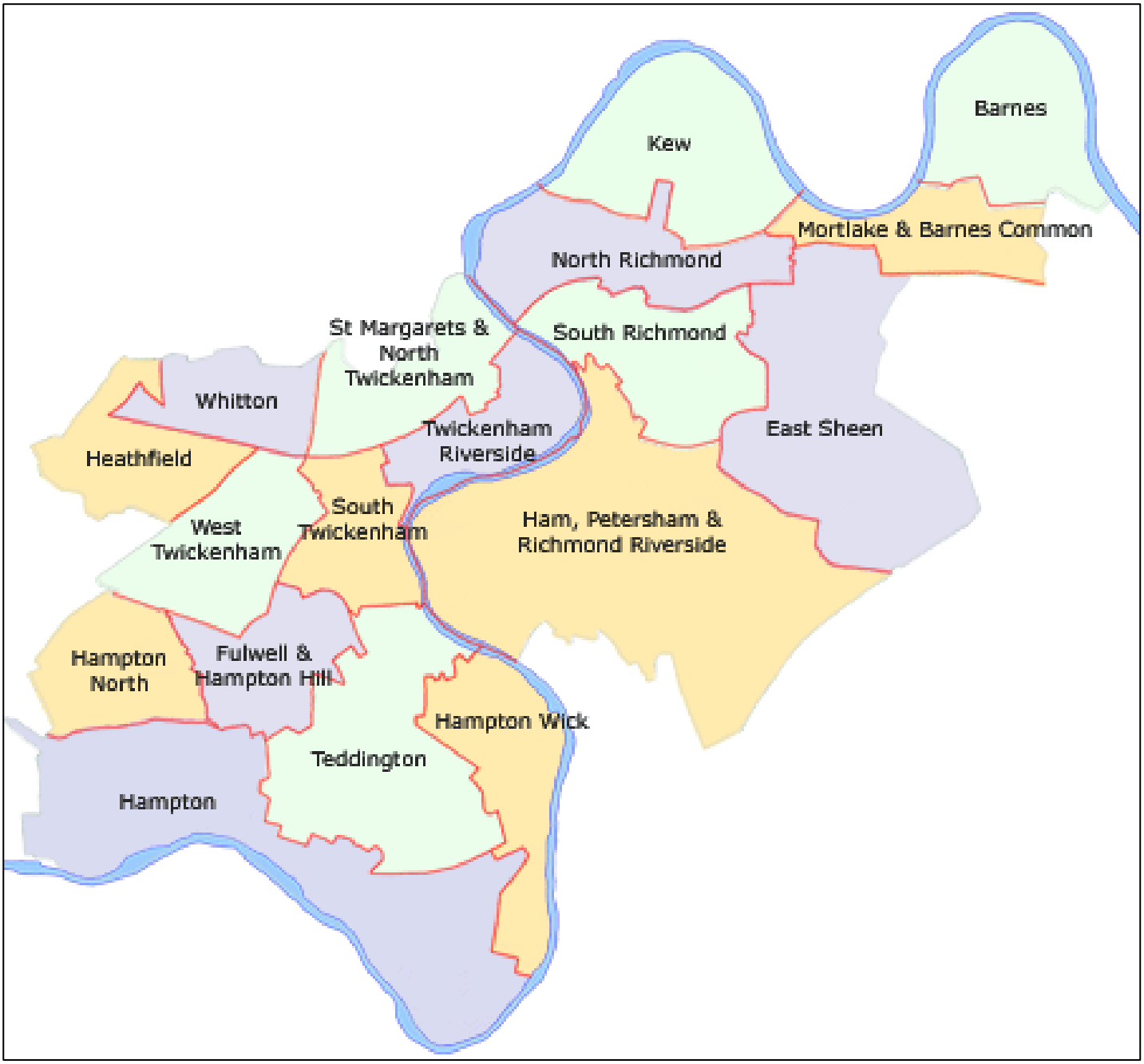
Maps Section



Map A Flood Risk in Richmond

London Borough of Richmond Upon Thames SFRA
Overview Map

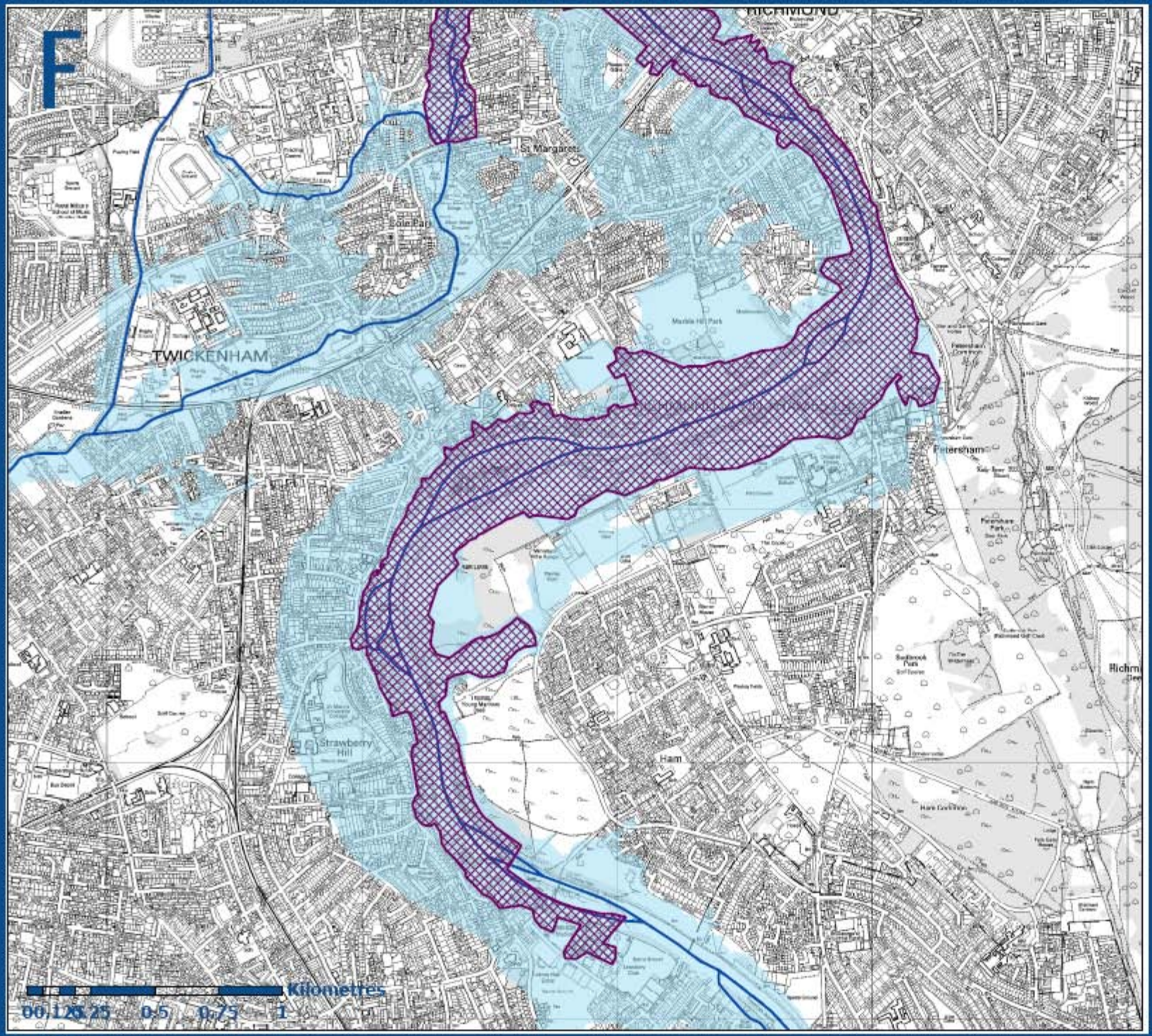
Map B Ward Boundaries in **Richmond upon Thames**



Map C Tidal Thames from Putney Bridge to Teddington Weir

Description: Tidal Thames from Putney Bridge to Teddington Weir Riverside		
The location of the Flood Warning Area is shown on Environment Agency maps 063FWT230 (1-4). Tide, tidal surge and Thames flow data and forecast surge are monitored at the Thames Tidal Defences Control Room, Thames Barrier. Warnings will be issued no later than 2 hours before the tide reaches this area; however, it is expected that warnings will generally be issued about 6 hours in advance of high tide.		
Key Vulnerable Infrastructure		
Please refer to following pages for individual community area lists		
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
3511		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:1000	0.1%	Generally 6 hours
Flooding History		
2008 Feb	Flood warning issued to area – water kept within defences	
2007 March, April	Flood warning issued to area – water kept within defences	
2006 Oct, Dec	Flood warning issued to area – water kept within defences	
Flood Defences		
Tidal flood defences line the entire stretch of this section of the tidal Thames, ranging in height from 5.41m AOD to 6.1m AOD. Eel Pie Island is also within this flood warning area and has a statutory defence height of 5.65 AOD. River embankments are a mixture of stone pitched and concrete faces embankments, vertical sheet piling, masonry and concrete walls. Some areas adjacent to the river are natural flood plain including parts of Old Deer Park, Petersham, Ham Meadows, Richmond Park, and Sion Park. Some of the defence line in this section is made up of property frontages with removable gates. Works were designed to provide a level of protection to a 1:1000 year flood standard for the main channel of the Thames. Defence levels were set by stature in 1930. Water levels upstream of Richmond are maintained by Richmond Half Tide Lock. Tide, tidal surge and Thames flow data and forecast surge are monitored at the Thames Tidal Defences Control Room, Thames Barrier, and the Thames Barrier will be closed should the need arise.		
Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Watch	Low lying riverside properties in West London boroughs in front of the 1:1000 defences, including Putney Embankment, Chiswick Mall, Strand-on-the-Green, Thames Bank, Mortlake, Friars Lane and Water Lane, Rivers Road and the Embankment, Eel Pie Island and the towpath below Teddington Lock.	Floodline Warnings Direct Media – LBC Radio, Radio Jackie
Severe Flood Warning	As Above	Floodline Warnings Direct Media – LBC Radio, Radio Jackie

Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	4	
Impact - Health - Social - Economic - Environmental	2 4 4 3	Final Risk Rating: High



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

The data provided is based on that currently available to the Agency. It should not be taken as definitive as full surveys may not have been carried out. Localised flooding from drains and small watercourses is not included. The Agency accepts no liability for any loss or damage arising from the interpretation or use of the information.

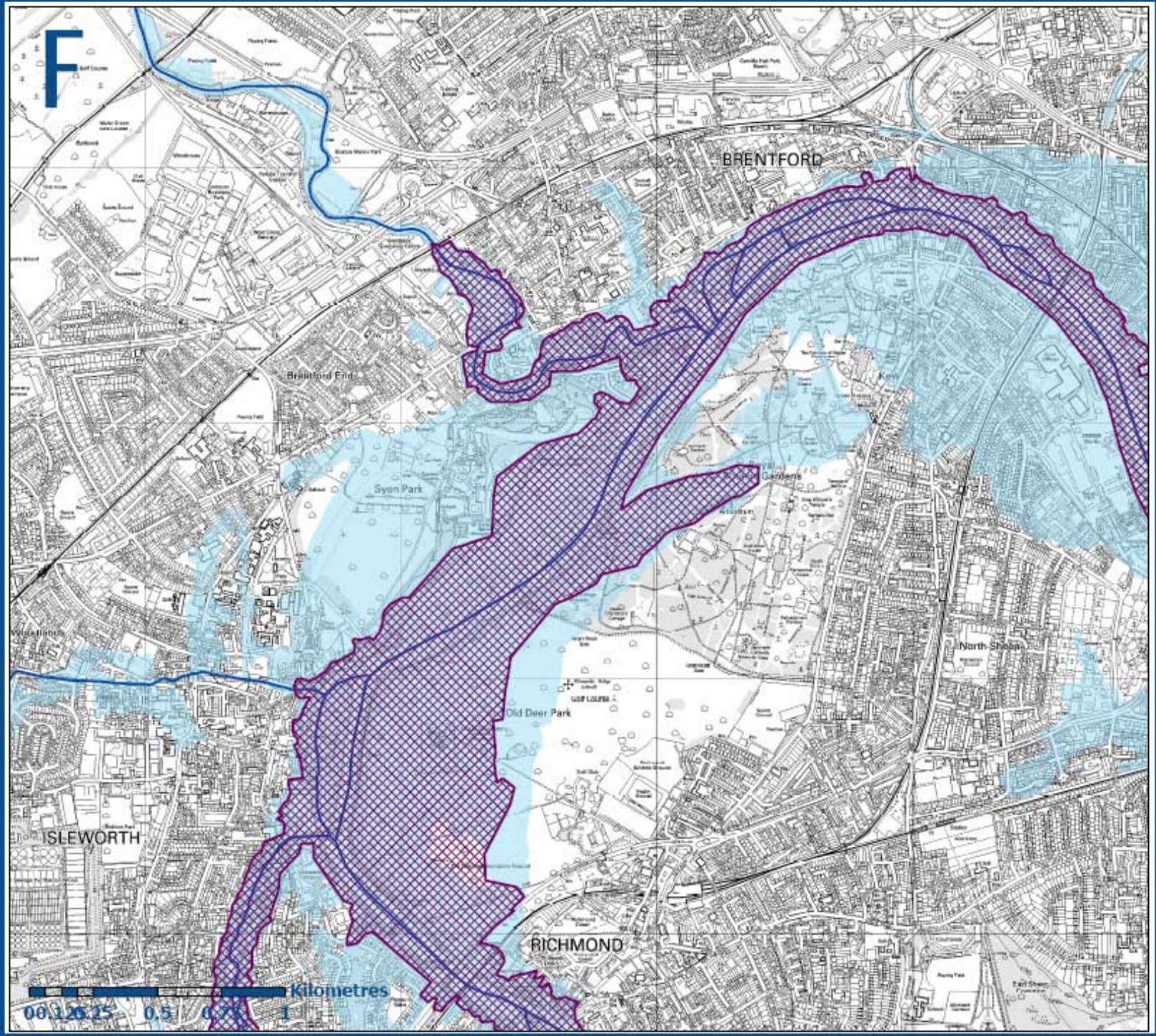
The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWT230 (1 to 4)
MAP 4

Tidal Thames from Putney Bridge to Teddington Weir Riverside Properties

Flood Warning Area: 063FWT230

January 2008



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

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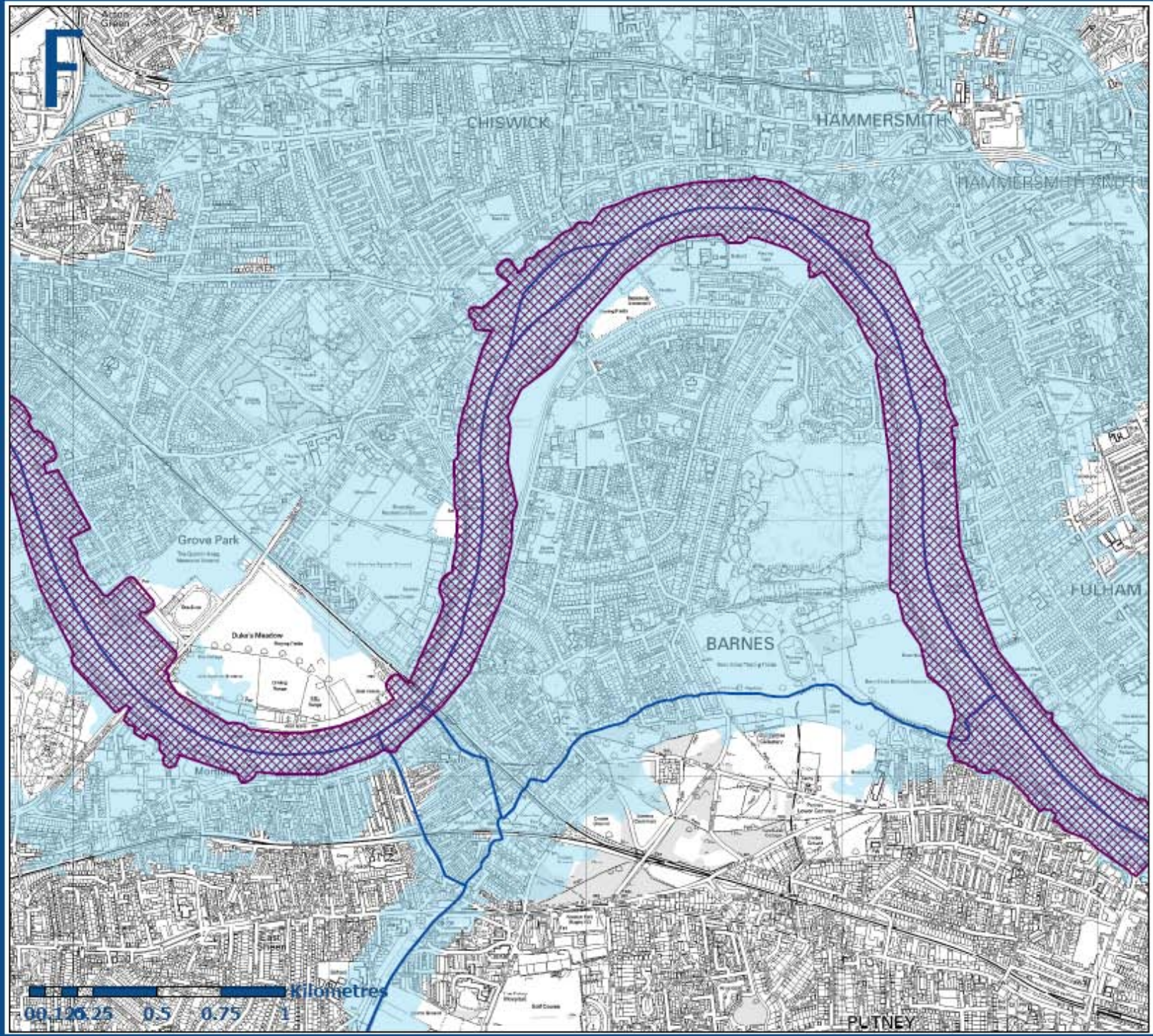
The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWT230 (2 to 4)
MAP 4

Tidal Thames from Putney Bridge to Teddington Weir Riverside Properties

Flood Warning Area: 063FWT230



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

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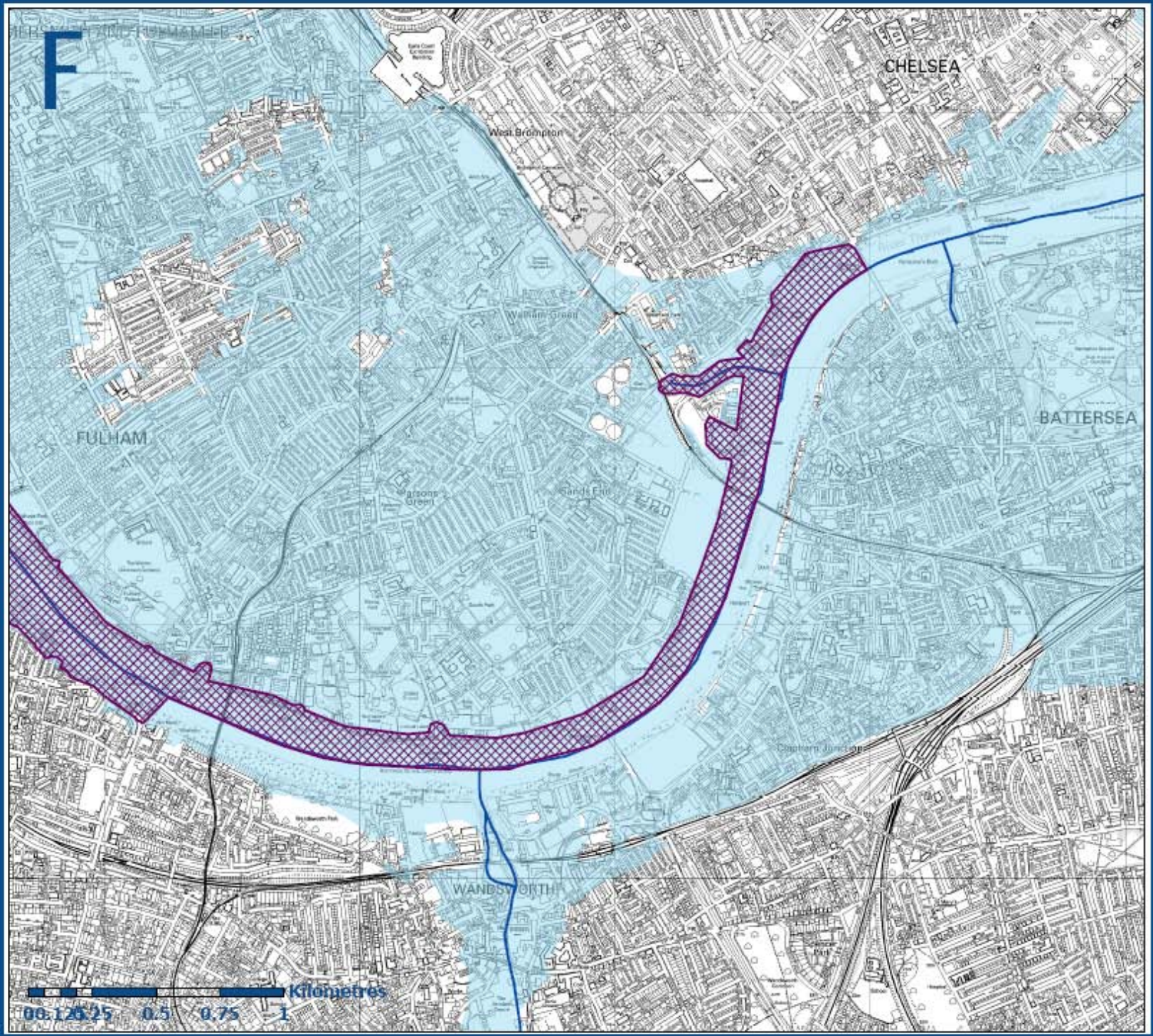
The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWT230 (3 to 4)
MAP 4

Tidal Thames from Putney Bridge to Teddington Weir Riverside Properties

Flood Warning Area: 063FWT230



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

The data provided is based on that currently available to the Agency. It should not be taken as definitive as full surveys may not have been carried out. Localised flooding from drains and small watercourses is not included. The Agency accepts no liability for any loss or damage arising from the interpretation or use of the information.

The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWT230 (4 of 4)
MAP 4

Tidal Thames from Putney Bridge to Teddington Weir Riverside Properties

Flood Warning Area: 063FWT230

January 2008

Map D Putney Bridge to Mortlake High Street East

Description: River Thames from Putney Bridge to Mortlake High Street East		
The location of the Flood Warning Area is shown on Environment Agency map 063FWT23Barnes. Likely flood events in this flood warning area are going to be due to overtopping of defences or a breach in the defence line.		
Key Vulnerable Infrastructure		
Barnes Montessori Nursery	Barnes Primary School	
Harrodian School	Ladybird Montessori Nursery School	
Lowther Primary School	Montessori Pavilion	
St Osmond's Catholic Primary School	St Paul's Prep School	
St Paul's School	Swedish School	
Barnes Rail Station	Barnes Bridge Rail Station	
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
6993		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:1000	0.1%	Generally 6 hours
Flooding History		
There is no record of flooding within this Flood Warning Area.		
Flood Defences		
Tidal flood defences line the entire stretch of this section of the tidal Thames, ranging in height from 5.54m AOD to 5.94m AOD. River embankments are a mixture of stone pitched and concrete faces embankments, vertical sheet piling, masonry and concrete walls. Some of the defence line in this section of the tidal Thames is made up of property frontages with removable gates. The Beverley Brook, which passes through this flood warning area, is protected from tidal flooding by a tidal flap. Works were designed to provide a level of protection to a 1:1000 year flood standard for the main channel of the Thames. Defence levels were set by stature in 1930. Tide, tidal surge and Thames flow data and forecast surge are monitored at the Thames Tidal Defences Control Room, Thames Barrier, and the Thames Barrier will be closed should the need arise.		
Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	The Barnes Wetland Centre, the majority of the Barnes "peninsula", the Barnes Bridge railway station, A306 and the A3003.	Floodline Warnings Direct Media – LBC Radio
Severe Flood Warning	As above	Floodline Warnings Direct Media – LBC Radio
Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	3	
Impact - Health - Social - Economic - Environmental	2 5 4 3	Final Risk Rating: Very High

F

BARNES

FULHAM

Kilometres

0 0.1 0.2 0.4 0.6 0.8

Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

The data provided is based on that currently available to the Agency. It should not be taken as definitive as full surveys may not have been carried out. Localised flooding from drains and small watercourses is not included. The Agency accepts no liability for any loss or damage arising from the interpretation or use of the information.

The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWTBarnes (1 of 1)
MAP 4

The River Thames from Putney Bridge to Mortlake High Street East

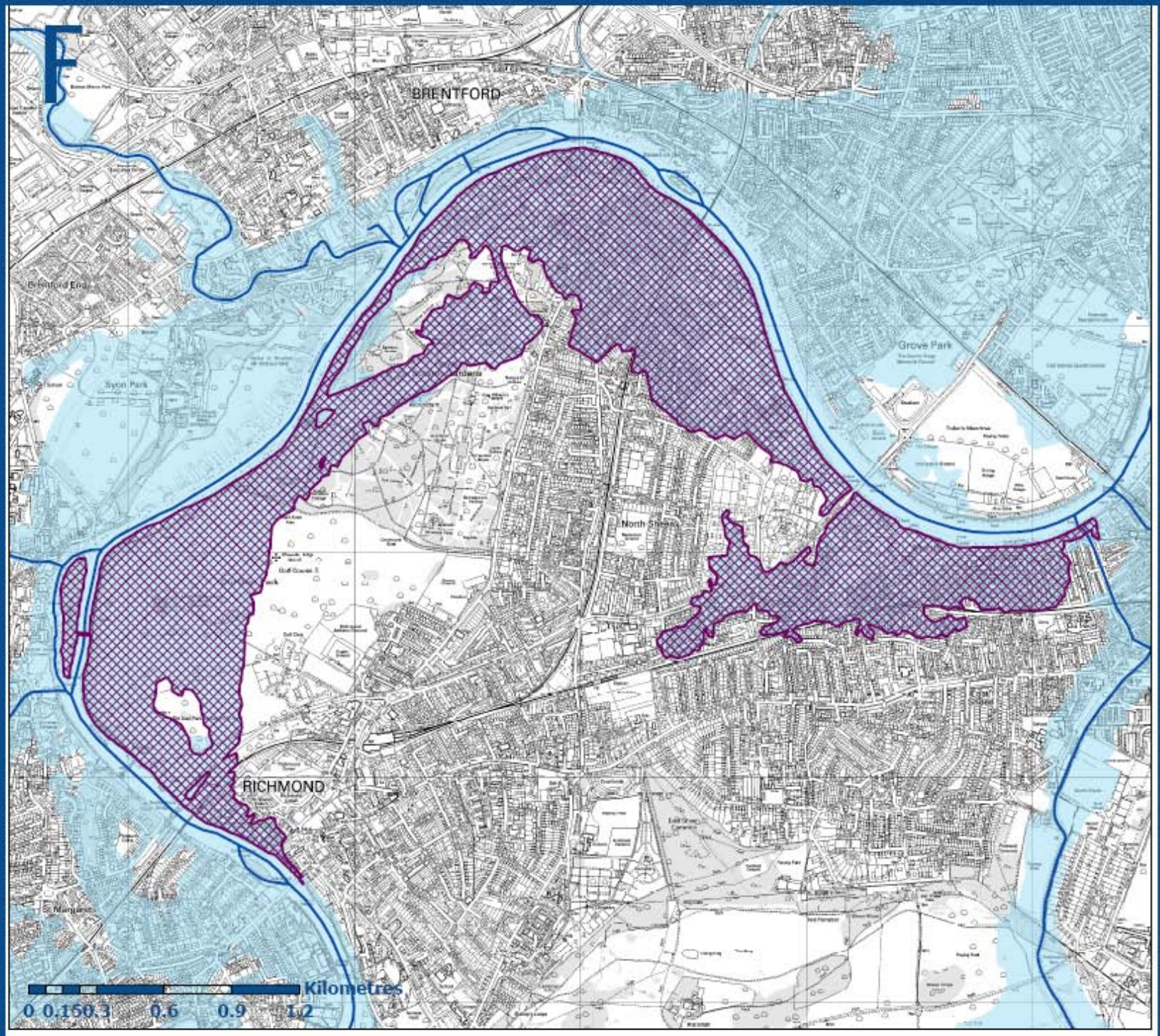
Flood Warning Area: 063FWT23Barnes

January 2008

Map E Mortlake High Street East to Richmond Bridge

Description: River Thames from Mortlake High Street East to Richmond Bridge		
The location of the Flood Warning Area is shown on Environment Agency map 063FWT23Mortlake. Likely flood events in this flood warning area are going to be due to overtopping of defences or a breach in the defence line.		
Key Vulnerable Infrastructure		
Broomfield House School Kew Green Prep School St Mary Magdalene Catholic Primary School Studio Montessori Nursery School Kew Day Nursery Mortlake Rail Station	Kew College Queens CE Primary School St Mary Magdalene Montessori Nursery Working Mum's Day Care	
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
5032		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:1000	0.1%	Generally 6 hours
Flooding History		
There is no record of flooding within this Flood Warning Area.		
Flood Defences		
Tidal flood defences line the entire stretch of this section of the tidal Thames to a height of 5.94m AOD. River embankments are a mixture of stone pitched and concrete faces embankments, vertical sheet piling, masonry and concrete walls. In Old Deer Park, the flood defence is made of natural earth embankments. Some of the defence line in this section of the tidal Thames is made up of property frontages with removable gates. Works were designed to provide a level of protection to a 1:1000 year flood standard for the main channel of the Thames. Defence levels were set by stature in 1930. Water levels upstream of Richmond are maintained by the Richmond Half Tide Lock. Tide, tidal surge and Thames flow data and forecast surge are monitored at the Thames Tidal Defences Control Room, Thames Barrier, and the Thames Barrier will be closed should the need arise.		
Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	Central Mortlake, including Mortlake railway station, North Sheen Cemetery, Kew, sections of the A205 and A307, the Royal Botanic Gardens, Old Deer Park, and some of the grounds Queensbury House, Richmond.	Floodline Warnings Direct Media – LBC Radio
Severe Flood Warning	As above	Floodline Warnings Direct Media – LBC Radio

Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	3	
Impact - Health - Social - Economic - Environmental	2 5 4 3	Final Risk Rating: Very High



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

The data provided is based on that currently available to the Agency. It should not be taken as definitive as full surveys may not have been carried out. Localised flooding from drains and small watercourses is not included. The Agency accepts no liability for any loss or damage arising from the interpretation or use of the information.

The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWT23Mortlake (1 of 1)
MAP 4

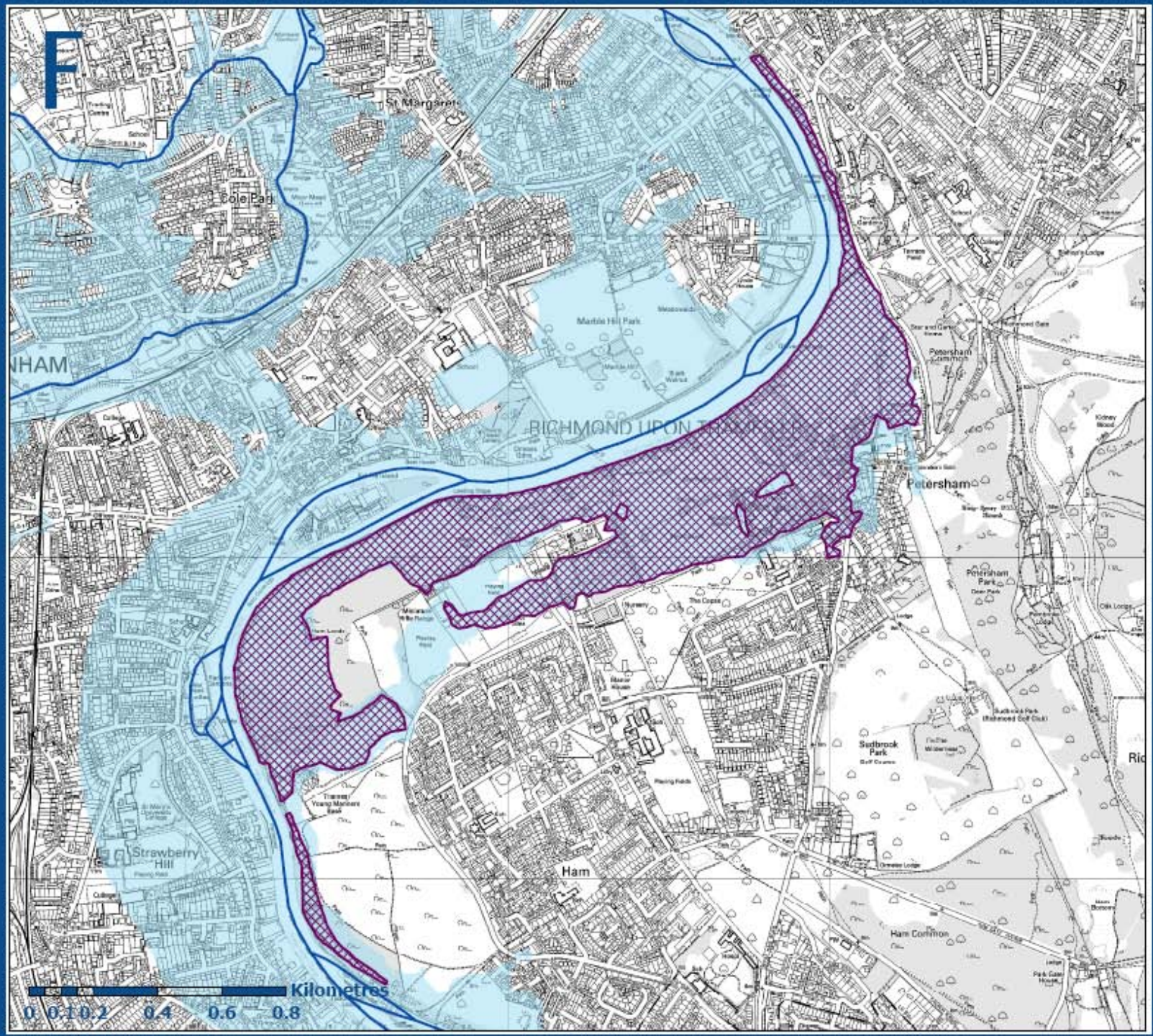
The River Thames from Mortlake High Street East to Richmond Bridge

Flood Warning Area: 063FWT23Mortake

January 2008

Map F Richmond Bridge to Teddington Weir

Description: River Thames from Richmond Bridge to Teddington Weir		
The location of the Flood Warning Area is shown on Environment Agency map 063FWT23Richmond. Likely flood events in this flood warning area are going to be due to overtopping of defences or a breach in the defence line.		
Key Vulnerable Infrastructure		
German School Russell Primary School		
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
78		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:1000	0.1%	Generally 6 hours
Flooding History		
There is no record of flooding within this Flood Warning Area.		
Flood Defences		
Tidal flood defences line the entire stretch of this section of the tidal Thames, ranging in height from 6.02m AOD to 6.1m AOD. River embankments are a mixture of stone pitched and concrete faces embankments, vertical sheet piling, masonry and concrete walls. In this area the land is primarily bounded by meadows and parkland, with a few residential and commercial properties in west Petersham. Works were designed to provide a level of protection to a 1:1000 year flood standard for the main channel of the Thames. Defence levels were set by stature in 1930. Tide, tidal surge and Thames flow data and forecast surge are monitored at the Thames Tidal Defences Control Room, Thames Barrier, and the Thames Barrier will be closed should the need arise. These tidal defences stop at Teddington Lock. Directly upstream of Teddington Lock, the Environment Agency has no formal flood defences in places.		
Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	The rear of some properties on Petersham Road, west Petersham, the grounds of Ham House and Ham Lands.	Floodline Warnings Direct Media – LBC Radio
Severe Flood Warning	As above	Floodline Warnings Direct Media – LBC Radio
Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	3	
Impact - Health - Social - Economic - Environmental	1 3 2 2	Final Risk Rating: Medium



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

The data provided is based on that currently available to the Agency. It should not be taken as definitive as full surveys may not have been carried out. Localised flooding from drains and small watercourses is not included. The Agency accepts no liability for any loss or damage arising from the interpretation or use of the information.

The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWT23Richmond (1 of 1)
MAP 4

The River Thames from Richmond Bridge to Teddington Weir

063FWT23Richmond

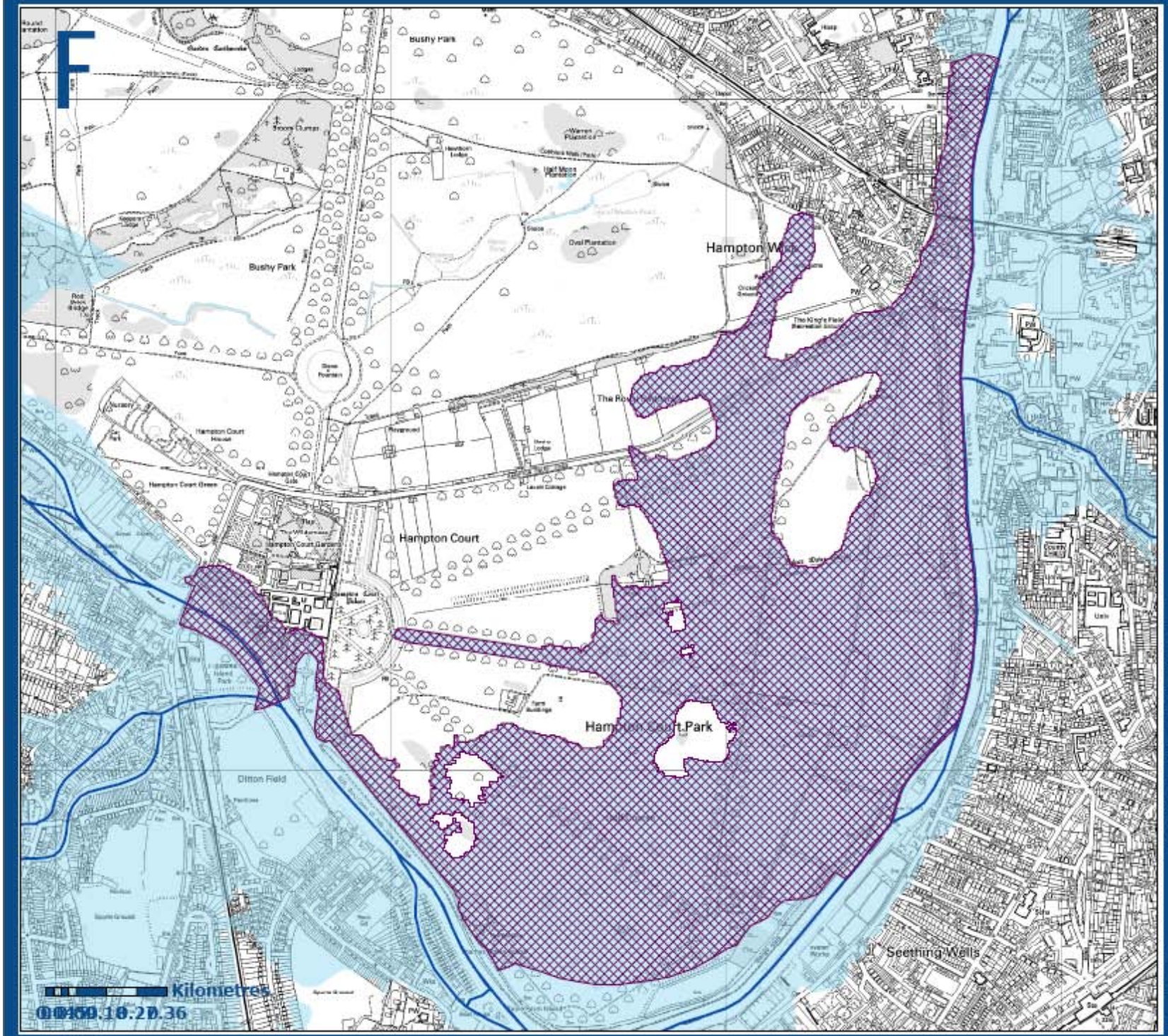
January 2008

Map G Hampton and Hampton Wick

Description: River Thames at Hampton and Hampton Wick		
The location of the Flood Warning Area is shown on Environment Agency map 063FWF23Hampton. The Environment Agency believes that the response time for this Flood Warning Area is 18+ hours. They will endeavour to give at least a 2 hour lead-time however in all cases this may not be possible.		
Key Vulnerable Infrastructure		
Teddington School		
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
260		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:2	50%	18+ Hours But At least 2 hours
Flooding History		
There is no record kept of flooding within this Flood Warning Area.		
Flood Defences		
Weir structures are located at Shepperton, Sunbury and Molesey Locks.		

Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	Hampton and Hampton Wick including Hampton Court, properties on the Barge Walk, Hampton Court Palace Golf Club and Hampton Court Road	Floodline Warnings Direct Media – LBC Radio, Radio Jackie
Severe Flood Warning	As above	Floodline Warnings Direct Media – LBC Radio, Radio Jackie

Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	5	
Impact - Health - Social - Economic - Environmental	1 1 1 1	Final Risk Rating: Low



Environment Agency

KEYPLAN

LEGEND

- Extreme Flood Outline
- Flood Warning Area
- River

The area outlined in purple indicates the flood warning area.

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The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWF23Hampton (1 of 1)
MAP 4

River Thames at Hampton and Hampton Wick

Flood Warning Area: 063FWF23Hampton

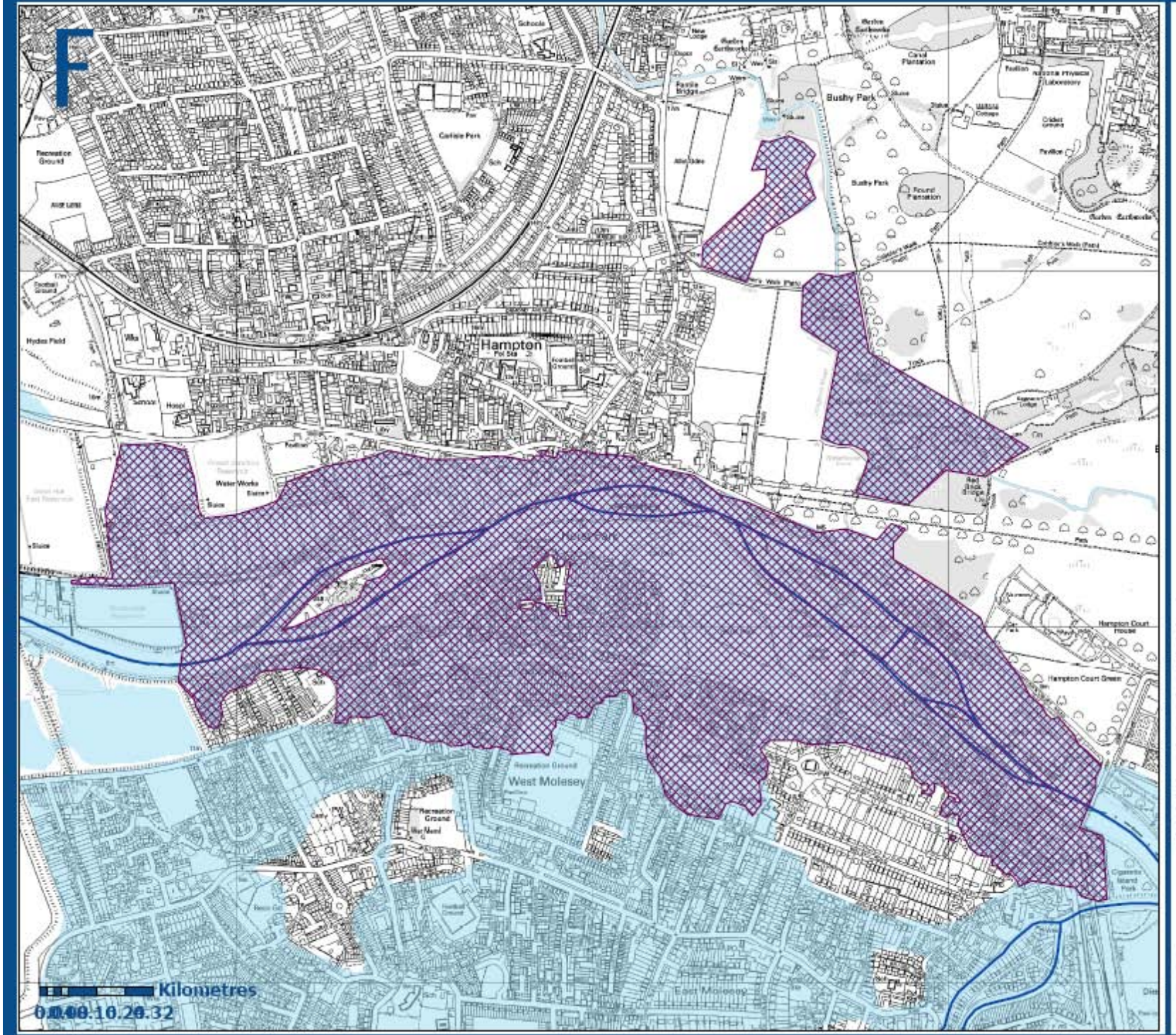
August 2008

Map H River Thames at Molesey

Description: River Thames at Molesey		
The location of the Flood Warning Area is shown on Environment Agency map 063FWF23Molesey. The Environment Agency believes that the response time for this Flood Warning Area is 18+ hours. They will endeavour to give at least a 2 hour lead-time however in all cases this may not be possible.		
Key Vulnerable Infrastructure		
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
1933 (surrey side)		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:2	50%	18+ Hours But At least 2 hours
Flooding History		
1955 Jan 200 properties flooded and a further 300 properties marooned by flood waters.		
Flood Defences		
Weir structures are located at Shepperton, Sunbury and Molesey Locks.		

Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	West and East Molesey	Floodline Warnings Direct Media – LBC Radio, Radio Jackie
Severe Flood Warning	As Above	Floodline Warnings Direct Media – LBC Radio, Radio Jackie

Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	5	
Impact - Health - Social - Economic - Environmental	5 5 5 3	Final Risk Rating: Very High



Environment Agency

KEYPLAN

LEGEND

- Extreme Flood Outline
- Flood Warning Area
- River

The area outlined in purple indicates the flood warning area.

The data provided is based on that currently available to the Agency. It should not be taken as definitive as full surveys may not have been carried out. Localised flooding from drains and small watercourses is not included. The Agency accepts no liability for any loss or damage arising from the interpretation or use of the information.

The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWF23Molesey (1 of 1)
MAP 4

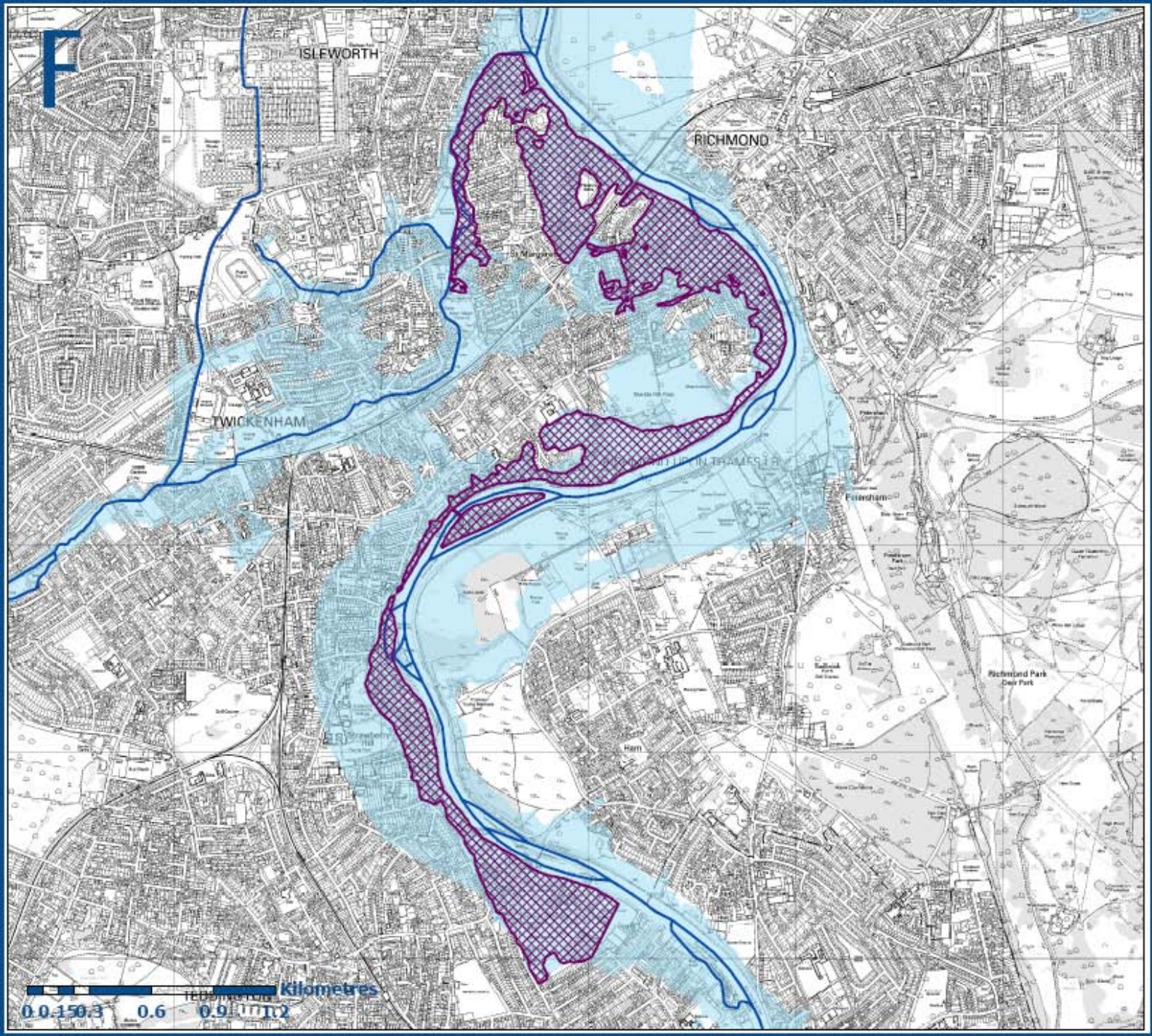
River Thames at Molesey

Flood Warning Area: 063FWF23Molesey

August 2008

Map I River Thames from River Crane to Teddington Weir

Description: River Thames from River Crane to Teddington Weir		
The location of the Flood Warning Area is shown on Environment Agency map 063FWT23Twicknhm. Likely flood events in this flood warning area are going to be due to overtopping of defences or a breach in the defence line.		
Key Vulnerable Infrastructure		
Brook House Nursery Newland House School St Mary CE Junior School Twickenham Park Day Nursery Mary's Day Nursery St Catherine's Catholic School	St James School for Boys Windsor Kindergarten R&T PCT Corporate Office York House (LBRuT) Social Services (LBRuT) The Parking Shop (LBRuT)	Twickenham Police Station St Johns Health Centre (PCT) Civic Centre (LBRuT)
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
2651		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:1000	0.1%	Generally 6 Hours
Flooding History		
There is no record of flooding within this Flood Warning Area.		
Flood Defences		
Tidal flood defences line the entire stretch of this section of the tidal Thames, ranging in height from 6.02m AOD to 6.1m AOD. River embankments are a mixture of stone pitched and concrete faces embankments, vertical sheet piling, masonry and concrete walls. In this area the land is primarily bounded by meadows and parkland, with a few residential and commercial properties in west Petersham. The River Crane enters the Thames at Isleworth which, although protected by a floodgate, is subject to tidal flooding under certain circumstances. The Crane Gates physically cannot close when the fluvial flow coming down the River Crane is above a certain level. In these situations, a high tide has the potential to cause flooding, particularly spring times, when the Thames Barrier has not closed. Works were designed to provide a level of protection to a 1:1000 year flood standard for the main channel of the Thames. Defence levels were set by stature in 1930. Tide, tidal surge and Thames flow data and forecast surge are monitored at the Thames Tidal Defences Control Room, Thames Barrier, and the Thames Barrier will be closed should the need arise. These tidal defences stop at Teddington Lock. Directly upstream of Teddington Lock, the Environment Agency has no formal flood defences in places.		
Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	Areas of St Margaret's including Halburton Road, St Peters Road and St Georges Road, the A3004 and a305, parts of Marble Hill Park grounds. Also included are riverside areas in Twickenham, including the Riverside, Water Lane, the Embankment, Eel Pie Island and Radnor Gardens. The rear of properties on Strawberry Vale, Twickenham Road and Manor Road are also likely to be affected.	Floodline Warnings Direct Media – LBC Radio
Severe Flood Warning	As above	Floodline Warnings Direct Media – LBC Radio
Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	3	
Impact - Health - Social - Economic - Environmental	2 5 4 3	Final Risk Rating: Very High



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

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The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWTTwickhm (1 of 1)
MAP 4

The River Thames from the River Crane to Teddington Weir

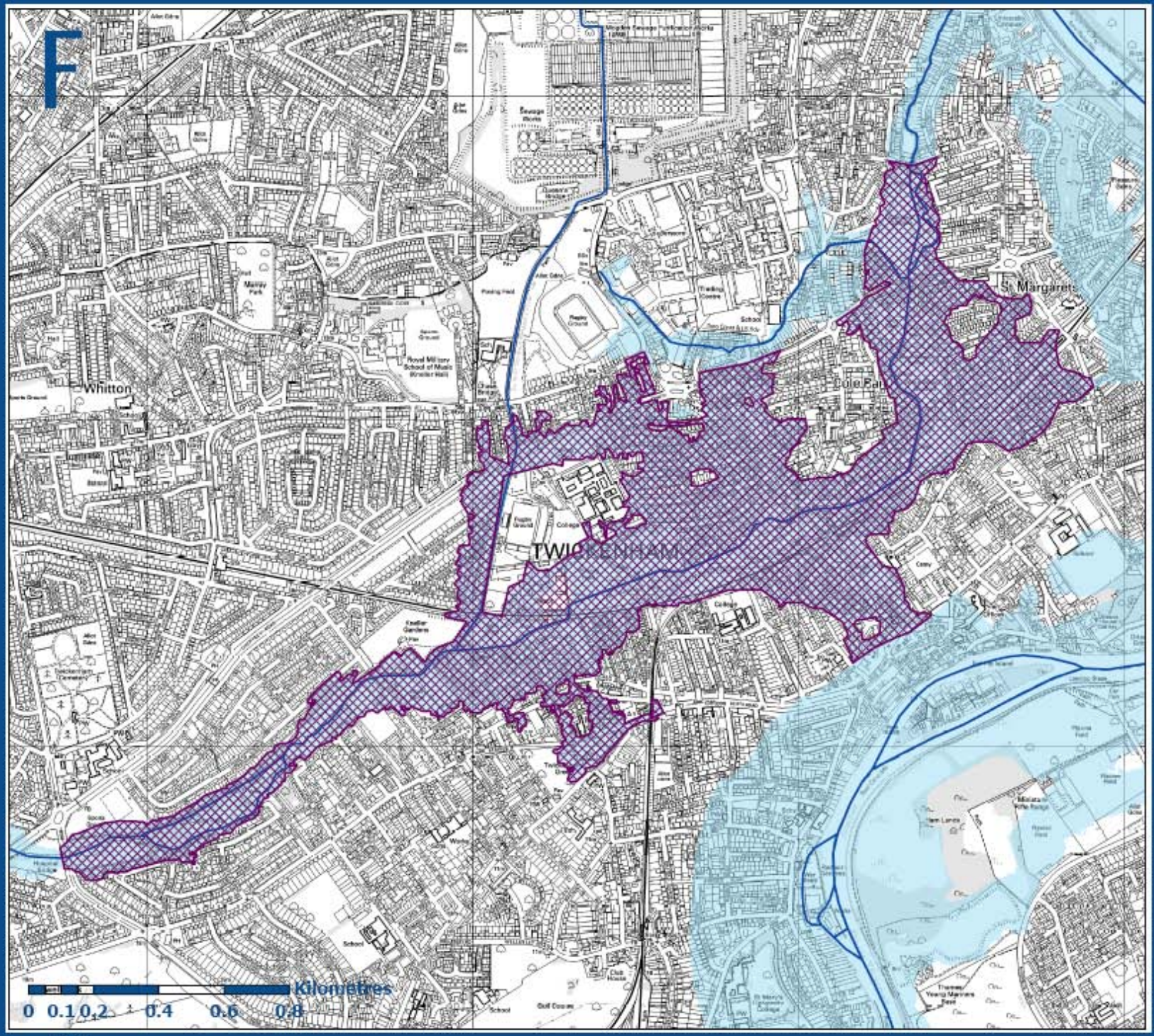
Flood Warning Area: 063FWTTwickhm

January 2008

Map J River Crane at Twickenham

Description: River Crane at Twickenham		
The location of the Flood Warning Area is shown on Environment Agency map 062FWF36Twickham. The Environment Agency believes that the response time for this Flood Warning Area is 6 hours. They will endeavour to give at least a 2 hour lead-time however in all cases this will not be possible.		
Key Vulnerable Infrastructure		
Brook House Nursery Richmond upon Thames College Teddies Nursery Orleans Infant and Nursery School St Mary CE Infant School St Stephens CE Junior School	Twickenham Police Station Twickenham Rail Station Curriculum & Training Centre (LBRuT) Regal House (LBRuT) Social Services (LBRuT) St Margaret's Rail Station	
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
3241		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:100	1%	Generally 6 Hours
Flooding History		
1993, 1990 Feb, Oct 1987, 1980 July, Aug 1979, 1978, 1975, 1965 May	Historically, those areas most at risk are low lying roads and properties near to the River Crane.	
Flood Defences		
Flood defences completed on the River Crane upstream and downstream of Chertsey Road in Twickenham consisted of raising the height of concrete channel walls and the replacement of four low weirs with one deeper weir. Steel sheet piled floodwalls from the Thames to Talbot Road have also been installed in order to improve channel capacity to the Thames. These works were designed to provide a level of protection to a 1:100 year standard. The Crane Gates, at the confluence of the River Crane and Thames, are designed to close across the River Crane at high tides to prevent flooding upstream. They open again automatically once the water level either side of the gates has equalised. The Crane gates physically cannot close when the fluvial flow coming down the River Crane is above a certain level. In these situations, a high tide has the potential to cause flooding, particularly spring tides, when the Thames Barrier has not closed.		
Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	Low lying roads and properties in St Margaret's, Cole Park, access roads surrounding Richmond upon Thames College, Twickenham	Floodline Warnings Direct Loudhailers Media – LBC Radio
Severe Flood Warning	As above	Floodline Warnings Direct Loudhailers Media – LBC Radio

Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	4	
Impact - Health - Social - Economic - Environmental	2 5 4 3	Final Risk Rating: Very High



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

The data provided is based on that currently available to the Agency. It should not be taken as definitive as full surveys may not have been carried out. Localised flooding from drains and small watercourses is not included. The Agency accepts no liability for any loss or damage arising from the interpretation or use of the information.

The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 062PWF36Twickham (1 of 1)
MAP 4

The River Crane at Twickenham

Flood Warning Area: 062FWF36Twickham

January 2008

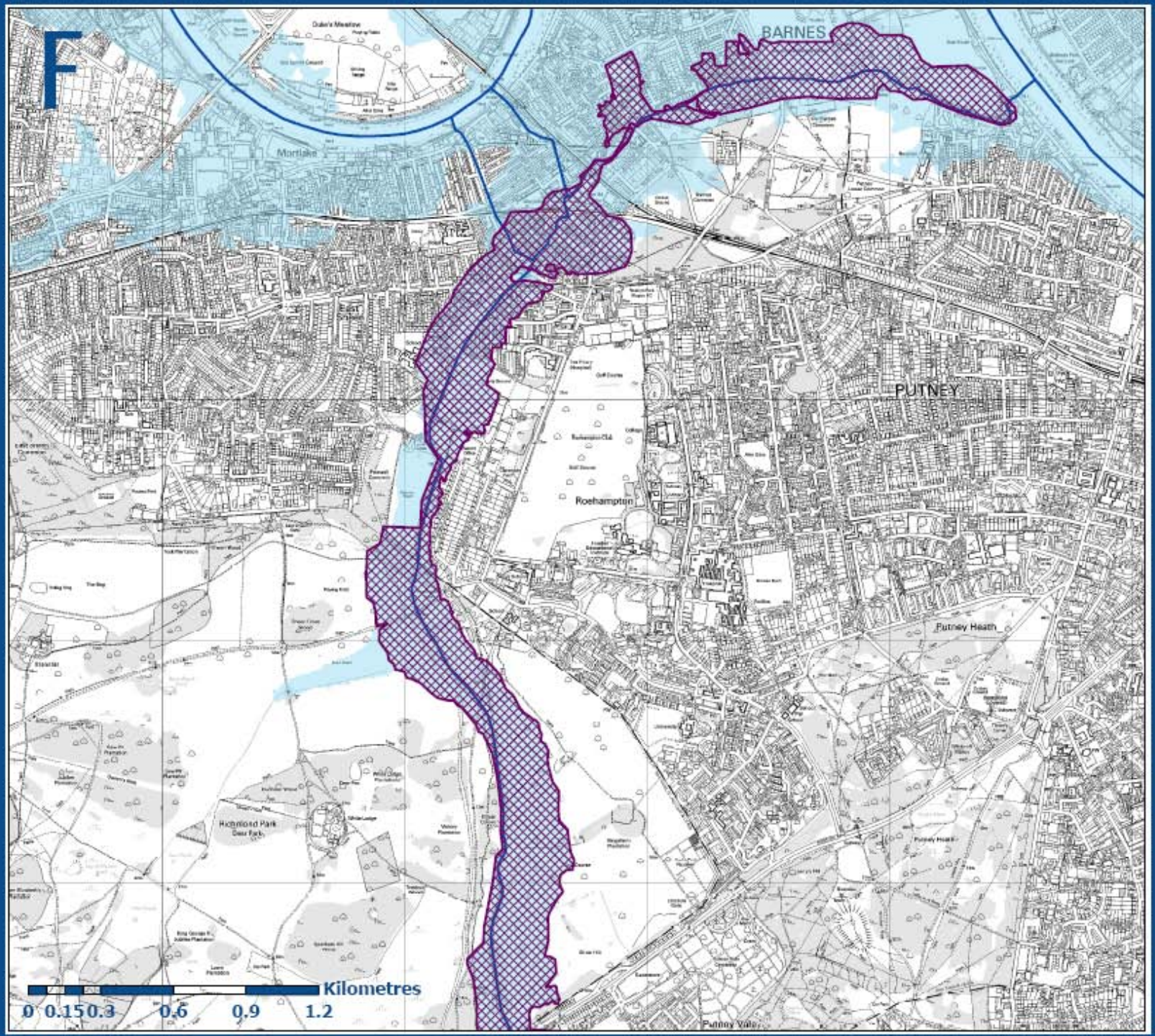
Map K Beverley Brook from New Malden to River Thames

Description: Beverley Brook from New Malden to River Thames		
The location of the Flood Warning Area is shown on Environment Agency map 063FWB402 (1-2). The Environment Agency believes that the response time for this Flood Warning Area is 6 hours. They will endeavour to give at least a 2 hour lead-time however in all cases this will not be possible.		
Key Vulnerable Infrastructure		
Sheen School East Sheen Primary School		
No. of properties at risk	**No. of properties registered to Flood Warning Service**	**Return Period**
2141		
Frequency of Flooding	**Probability of Flooding**	**Lead Time**
1:50	2.0%	1-6 Hours

Flooding History		
2007	July	40mm rainfall fell in 3.25 hours. Most of the flooding was due to heavy rainfall, mostly surface runoff but some overtopping of Beverley Brook. Around 80 properties affected
1981	Aug	17 properties flooded
1968	Sep	16 properties flooded
1965	-	4 properties flooded
1956	Jul	3rd largest recorded flood event on the Beverley Brook

Flood Defences		
The Environment Agency is considering the feasibility of a flood alleviations scheme on the Beverley Brook.		
Flood Warning Level	**Locations Affected**	**Warning Method**
Flood Warning	The Beverley Brook flows through New Malden, Wimbledon and Barnes.	Floodline Warnings Direct Media – LBC Radio, Radio Jackie
Severe Flood Warning	As above	Floodline Warnings Direct Media – LBC Radio, Radio Jackie

Risk Assessment	**Refer to Emergency Preparedness, Annex 4d**	
Likelihood	5	
Impact - Health - Social - Economic - Environmental	1 1 1 1	Final Risk Rating: Low



Environment Agency

KEYPLAN

LEGEND

Extreme Flood Outline

Flood Warning Area

River

The area outlined in purple indicates the flood warning area.

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The extreme flood outline represents a 0.1% chance of flooding in any one year to this extent. (1 in 1000 year flood event)

DRAWING NUMBER: 063FWB402 (2 of 2)
MAP 4

Beverley Brook, from New Malden to River Thames

Flood Warning Area: 063FWB402

January 2008

Map L Basement Flats in Richmond upon Thames

M**ap M** Schools in Richmond upon Thames

Annex

Annex A – General Public Advice

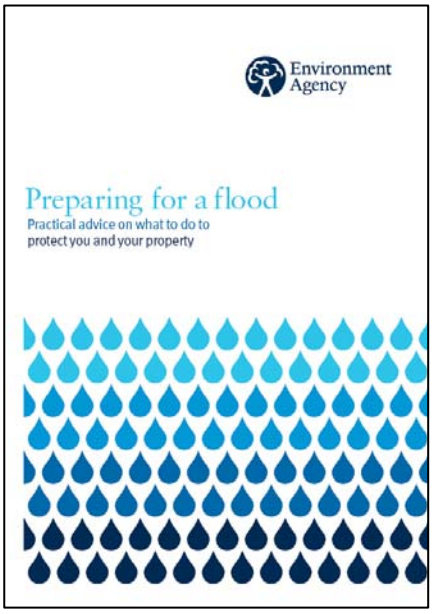
The London Borough of Richmond upon Thames recommends that the public make use of the Environment Agency and the HPA's advice.

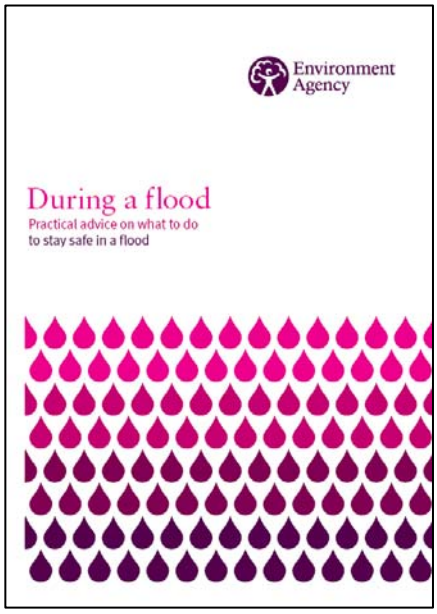
Environment Agency
The Environment Agency has various leaflets of advice:
- Preparing for a Flood
- During a Flood
- After a Flood

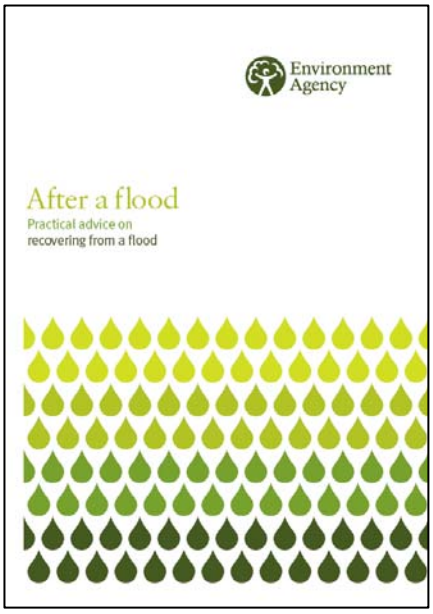
These leaflets can be found on the Environment Agencies website, in PDF format and in an audio version. The London Borough of Richmond upon Thames also has a number of copies of these leaflets.

The Environment Agency also provides:
- A map which identifies areas at risk of flooding (top right hand corner)
  http://www.environment-agency.gov.uk/business/topics/flooding/default.aspx
- Information on flooding for businesses
  http://www.environment-agency.gov.uk/business/topics/flooding/default.aspx

- Floodline Warnings Direct e
  A free service that provides flood warnings direct by phone, mobile, email, SMS text message, fax or pager. The number is **0845 988 1188**.







HPA
The HPA has a list of Frequently Asked Questions available on its website. These can be found at: http://www.hpa.org.uk/webw/HPAweb&HPAwebPrinterFriendly/HPAweb_C/1213686561005?p=1213686561915

LBRuT
Flood advice can also be found on the council's website: http://www.richmond.gov.uk/home.htm

Richmond Council does not issue sandbags to residents or businesses for defence of property.

Annex A1 – Environment Agency Advice

Insert Environment Agency Leaflets:

Preparing for a Flood
During a Flood
After a Flood

If this is an electronic copy of the flood plan, please find these leaflets on the Environment Agency Website:
http://www.environment-agency.gov.uk/

Annex A2 – Health Protection Agency Advice

The Following information has been taken from the HPA website:
http://www.hpa.org.uk/webw/HPAweb&HPAwebPrinterFriendly/HPAweb_C/1213686561005?p=1213686561915

Protecting people
Preventing harm
Preparing for threats

Flooding – Frequently Asked Health Questions

I think floods may be coming soon to my local area – what should I do?
Listen out for flood warnings on radio and television and follow any advice from the emergency services. You can also phone the Environment Agency Floodline on 0845 988 1188. Their website www.environment-agency.gov.uk carries the latest information about flood warnings and advice about preparing for imminent floods. The Environment Agency is the main source of public information about flooding; the HPA provides specific advice about the health aspects of flooding.

What is the most dangerous thing about a flood?
The main threats to health during and immediately after a flood are drowning, and injuries caused by accidents in flowing water. Walking or even driving through floodwater is risky - six inches of fast flowing water can knock you over and two feet of water will float your car. Manhole covers may have come off and there may be other hazards you can't see.

The other main health hazard in floods come from the stress and strain of the event and clean-up. Take time to look after your and your family's mental health and wellbeing. Do not overexert yourself in the clean-up, and you'll avoid added health problems.

There is also a serious danger posed by carbon monoxide fumes from the indoor use of generators and other fuel-powered equipment, such as driers.

What's the best health advice – isn't there a risk from bugs in the water?
Infection problems arising from floods in this country are rare. Usually any harmful bugs in floodwater become very diluted and present a low risk, but there are a few precautions to be aware of when dealing with flooding which should prevent unnecessary additional health problems:

- Wherever possible, try to avoid coming into direct contact with floodwater. If you have to go into the water, wear waterproof gloves and rubber boots and remember to be careful of potentially concealed hazards.
- Wash your hands – this is the most important way to get rid of harmful bugs. Use warm, clean water and soap, then rinse and dry your hands after going to the toilet, before eating or preparing food, after being in contact with flood water, sewage or with items that have been in the water. Use cold water to wash if warm is not available. If there is no clean water, use disposable soapy, wet wipes to carefully clean all parts of your hands and dry them.
- waterproof plasters.
- Keep children out of the water
- Don't eat any food that has been touched or covered by floodwater or sewage.

What if I start to feel unwell?
If you feel unwell this does not necessarily mean that you are suffering from any infection. If you are concerned, then call NHS Direct or visit your family doctor. You should contact your family doctor if you become ill after accidentally swallowing contaminated water or mud and tell the doctor your house was flooded.

Both the physical stress associated with overexertion in cleaning up premises and the mental stress caused by temporary relocation may make you feel unwell. Remember that tiredness, difficulty sleeping and anxiety are normal in these circumstances and may go away with time. If you're feeling overwhelmed, contact friends, relations or your family doctor. And keep warm – cold can lead to hypothermia.

Did many people fall ill after the summer 2007 floods?
Throughout the summer 2007 floods, the Health Protection Agency kept a close watch on the health of communities affected by flooding to track any changes in the rates of reported infectious disease. From data collected from GPs, hospital laboratories, NHS Direct calls, and Health Protection Units, the HPA found no evidence of increased outbreaks of illness due to the floods. This was in line with previous experience from floods in developed countries, including the UK.

How do I check if my local health services are affected (i.e. GPs, outpatient appointments)?
If you can, use the usual local telephone numbers for your health services. In more severe circumstances the local NHS Primary Care Trust may be issuing updates on access to local NHS services and NHS Direct (0845 4647) is also a good source of local health service information.

Should I take any precautions regarding my children?
- Do not allow children to play in flood-water areas.
- Do not let young children play on affected paved or concreted areas until they have been cleaned down and restored to their normal condition. Sunlight and soil help destroy harmful bacteria so it is usually safe for children to play on grass a week or so after the floodwater has gone.
- Do wash children's hands frequently – particularly after playing outdoors and always before meals.
- Do seek medical advice, as under normal circumstances, if infants are unwell with diarrhoea and vomiting.
- Do wash floodwater-contaminated toys with hot water and detergent before allowing them to be used. For soft toys, put them in a hot (60°C) machine wash, along with any other affected fabric items.

Is food safe to eat?
The Food Standards Agency advises people not to eat any food that has been touched or covered by floodwater or sewage. Do not eat any produce grown on an allotment or garden that has been flooded, unless it has been cooked. If you have a catering business and have been affected by flooding, ask for advice from the environmental health service at your local authority.

How do I prepare food safely?
- Wash your hands before and after preparing food. Using clean water, detergent, then a normal kitchen disinfectant, clean and disinfect work surfaces, plates, pans, cutlery, and plastic/glass chopping boards before preparing food. Powerful disinfectants, such as strong bleach are not necessary and may be harmful to surfaces.
- Throw away wooden chopping boards that have been in contact with floodwater or sewage. If you have a working dishwasher and mains water supply, this is a more efficient way to clean smaller items.
- Thoroughly clean the inside of your fridge and food cupboards if they have been touched by floodwater, using detergent, water and normal household cleaning products.
- If your power has been cut off and your fridge has not been working for a few hours, throw away the food inside. If your freezer has not been working, throw away any meat, fish or dairy products, or food containing these, if they have started to get soft or are contaminated by floodwater. Throw away any food that you would eat frozen, such as ice cream.

What about commercial kitchens?
The Industry Guide to Good Hygiene Practice published in 1995 (see http://archive.food.gov.uk/dept_health/pdf/catsec.pdf) indicates what should be disinfected and what does not normally need to be. Disinfection in normal situations should be restricted to direct food contact surfaces including work tops and equipment, hand contact surfaces such as doors and cleaning materials such as cloths, bowls and brushes.

If the food preparation has been flooded then it may be necessary to thoroughly clean in all areas and this should include disinfection.

What do I do with flood-damaged food?
Put flood-damaged food in black plastic refuse sacks, seal and put out when your next refuse collection is due.

Remember to check with insurers before disposal because food may be insured. Don't be tempted to try to salvage damaged food - including tins as they may be damaged or contaminated.

How should I clean up my home safely?
See also the Environment Agency leaflet *After a Flood*
Protective clothing:
wear rubber boots, an apron and waterproof gloves during the clean up. If you are scrubbing, hosing or pressure-washing, you may cause a lot of splashing and it is a good idea to wear a standard face mask, such as those sold by DIY stores. Goggles offer added protection and they can be reused after thorough washing. Remember to wash your hands thoroughly after each clean-up session.
Electrics:
You should not switch on electrical appliances, which have been in contact with floodwater unless a competent electrician has checked them, as there is a risk of electrocution. Your local Electricity Board will be checking main supplies.
Children:
Keep children and pets out of the affected area until cleanup has been completed. Even when dried out, be aware that damaged timber floorboards and floor tiles may present a risk of injury to the young.

How and what to clean
- Using clean water, detergent, then a normal kitchen disinfectant, clean and disinfect work surfaces, plates, pans, cutlery, and plastic/glass chopping boards before preparing food. Powerful disinfectants, such as strong bleach are not necessary and may be harmful to surfaces.
- Thoroughly clean all other hard surfaces, including walls, hard-surfaced floors and furniture with hot soapy water, using an ordinary household detergent, until they look clean. Allow to dry thoroughly - this will also help to destroy germs left behind.
- Other soft furnishings that have been contaminated and cannot be put in a washing machine will have to be cleaned professionally or, if this is not possible, may have to be disposed of.
- Do not mix detergents with chlorine based bleaches as this may release hazardous fumes.
- Remember to take regular breaks in the fresh air.
- Remove and discard all soft furnishings and fittings that are damaged beyond repair or mouldy.
- Remove dirty water and silt from the property including the space under the ground floor if you have wooden floors. This space may need pumping out.
- If you need to store water, try not to use the same containers used to empty flood water and mud from your home.
- Heating and good ventilation will assist the drying process. Help the drying process by using fans, air conditioning units, and dehumidifiers, but be very aware of the danger of carbon monoxide poisoning (see below).

Clothing and bedding:
These and other soft/fabric articles including children's toys etc should be laundered on a hot wash (60°C or the highest temperature indicated on manufacturer's instructions) which will destroy most germs that may be present. Heavily contaminated clothes can be soaked first to avoid grit damaging the washing machine. Contaminated clothes should be machine washed separately to uncontaminated clothes. If you suspect problems with your drainage system, it is recommended that a launderette be used for washing large quantities of clothes and linens until your waste-water system has been checked.

Insurance:
If items are likely to be the subject of insurance claims, speak to insurers and find out what evidence claims will require. In the interim, we recommend that affected items are moved and stored in areas away from those which are used for day to day living.

Living in your flood-damaged home:

It is recommended that you only fully re-occupy your home once the above cleaning has been carried out. There may be additional works to be carried out eventually as advised by your insurance company, housing officer, landlord, builder etc.

If you decide to return to your home before this further work is completed you should:

1. Try to have some heating on at all times, once it has been safety checked
2. Consider the use of a dehumidifier
3. Ensure the property is well ventilated
4. Leave windows open as much as possible but be mindful of security.

If you are living in a flood-damaged home and you become concerned that it is no longer safe to stay in, please contact you local council for advice.

Ensure that if you have air-bricks to any under floor spaces that these are unblocked to give cross ventilation to these areas. As floorboards and walls continue to dry out, any loose material and dust resulting from this should be vacuumed up on a regular basis.

Mould:
You may notice mould growing on damp walls. This should disappear as your home dries out. Areas where mould remains can be cleaned with warm water and detergent. If specialist treatment is necessary for persistent mould this should be carried out by a skilled operator who will use appropriate protective equipment and precautions. You should not attempt to do this yourself.

Rats and other pests:
Rats can move into homes due to flooding of their nests, but they are generally wary of humans. If normal waste collection services are disrupted, the build up of waste may attract rats and other pests. Store your rubbish in hard bins or if this is not possible, try to keep rubbish bags in a place away from your home. Avoid approaching or cornering rats. If you are bitten by a rat then seek medical advice. If you have to pick up dead rats, wear gloves and dispose of the rats in a plastic bag.

What are the chemical hazards involved in floods and cleaning up?

Carbon monoxide poisoning:
Remember that petrol or diesel generators and dehumidifiers should never be used indoors without good ventilation, keeping doors and windows open whenever possible. The exhaust gases contain carbon monoxide which can quickly build up to poisonous levels without good ventilation, keeping doors and windows open whenever possible.

The same risk is carried by portable grills, pressure washers, camp stoves, paraffin- fuelled heaters or other devices using gasoline, propane or natural gas which should not be used indoors for heating or boiling water or cleaning. If you have to use these devices to boil water this should be done outdoors. If you cannot use these devices outdoors and there are no other alternatives available, then they should only be used to boil water for as short a period as possible in well ventilated rooms. They should never be used to heat or dry out rooms. If you experience dizziness, headaches or disorientation, the appliance should be switched off, move to a well-ventilated area and seek medical advice.

Car batteries:
Older batteries may leak acid, so it is advisable to use rubber gloves when handling them.

Household chemicals:
Special care should be taken when opening cupboards that may contain household or garden chemicals that have become wet, especially those in bags or cardboard packaging. Wear rubber rubber gloves to handle any of this packaging.

Oil in floodwater:
Oil films may be seen floating on the floodwaters both inside buildings and surrounding areas. It is recommended that these films should not be disturbed and exposure to them should be avoided. Floodwaters should be allowed to subside and on contact with the ground the petrol allowed to

evaporate. As is normal practice people are reminded not to smoke or have fire sources such as matches in the vicinity of petrol films.
Any remaining oil contamination in accessible areas can be removed by using a detergent solution and washing the surface down after initial cleaning has been carried out. In inaccessible areas such as under floorboards it may present an odour problem but is not necessarily a health hazard. Further advice should be sought from Environmental Health if the odour persists or if you are particularly concerned about it for other reasons.
Enclosed areas:
Avoid enclosed areas that may be chemically contaminated, such as garages and cellars where hazardous fumes may build up. Before entering, ensure such confined areas have good ventilation, with doors and windows open, and do not allow children and animals to enter.
Gas systems:
Water and mud may enter gas systems during a flood. Even if appliances appear to be working normally, the flue or ventilation systems may be affected. For safety reasons it is most important to have all appliances inspected by a CORGI registered engineer.
Cleaning up where chemical contamination is suspected at home: Although any chemicals in floodwater will have been very diluted and present a low risk, as with sewage contamination, you should always wear protective clothing - rubber boots, an apron and waterproof gloves. If you are scrubbing, hosing or pressure-washing, you may cause a lot of splashing and it is a good idea to wear a standard face mask, such as those sold by DIY stores. Goggles offer added protection and they can be reused after thorough washing. Remember to wash your hands thoroughly after each clean-up session.

Who is responsible for the safety of my mains water supply?
People whose water comes through a mains supply should follow the advice of their local water company regarding the safety of their water supply. In most flooding circumstances, the mains water supply remains safe.

Water companies have a duty to take all necessary steps to protect public health. If a water treatment works becomes flooded, for example, alternative supplies will be made available, such as by bottled water or bowser, but in the meantime consumers may be advised to boil water before drinking or temporarily stop using water for domestic purposes.

My mains water tastes funny - what should I do?
If you notice a change in water quality, such as the water becoming discoloured or there is a change in taste or smell, or if you are unsure, ring your local water company. Whilst waiting for an answer, and if water is urgently required, boil all water intended for drinking or use bottled water.

How do I use tap water that may be contaminated?
The quality of tap water is the responsibility of your local water company. Usually, in a flood the water supply and distribution network are unaffected and so it is safe to drink the water. If for any reason it is not safe to drink, the water company will inform you.

If there is evidence or concern that the tap water may be contaminated, boil and cool it before using it to wash food that won't be cooked, such as fruit or salad. It is safe to use unboiled tap water in the preparation of food which is to be cooked. It is also safe to use unboiled tap water for cooking if it will be boiled during the cooking process.

I've been advised to boil my mains water – what do I need to know?
There are three kinds of water notices for different circumstances: Boil tap water before use; Do not drink your tap water; Do not use your tap water.

If you have been advised to boil your water before use, this will be for drinking and food preparation. All water for these purposes should be brought to a boil and then allowed to cool before using. Remember that boiling water can carry a risk of scalding accidents. It is advisable to use a kettle rather than pots and pans. If you must use open containers such as pots and pans,

then special care should be taken when young children or vulnerable people are involved. Keep panhandles turned inwards when boiling water in pans so that children cannot reach them.

Water from a bowser should be safe to drink but it requires boiling before use because the containers used to transfer water from bowser to home may not be clean. Water from the hot tap is not suitable for drinking whether in flood circumstances or not.

What if my water comes from a private supply?

If your water is a private supply such as a well or spring, then check that it has not been affected by the floodwater. If a private well or spring has been covered by floodwater, if the water changes colour, taste or smell, or you believe the supply has been affected by the flood then ring your local council for advice. Whilst waiting for an answer assume the water is unsafe to drink unless boiled or source an alternative supply.

Continue to boil the water until the supply has been tested and shown to be safe. Boiling water kills pathogenic bacteria, viruses and parasites that may be present in water, but not harmful chemicals. Bring the water to the boil and then allow it to cool before drinking. Don't store large quantities of boiled water in open containers, such as bins, as they may become contaminated over time.

How do I clean bowls and buckets for water containers which have been in the floodwater?

Use an appropriately diluted bleach solution or sterilising tablets, following manufacturer's instructions, to clean containers. Use water storage tanks and other types of containers with caution. This applies particularly to pans and utensils used in cooking or food preparation.

Ensure the water taps are cleaned with hot water and detergent before using them for the first time after a flood. Allow the taps to run for a few minutes when you start using the mains water again, as this should clear the pipes.

How should I use the bowser and bottled water supplied to replace mains water?

Only bowser water which has been boiled or bottled water should be used for drinking (note below regarding bottle-fed infants), brushing teeth, washing food, cooking and making ice.

If there is no gas or electricity available to householders to boil water bottled water should be used in all circumstances.

How do I flush the toilet with no mains water?

With restrictions in drinking water supply there may be insufficient water for flushing toilets. It is therefore important that all water used for washing, bathing, and from cooking (i.e. water from boiled vegetables) or washing up is saved in buckets to be used for flushing. It is not necessary to flush the toilet after urination. Other sources of water, for example, from garden water butts can also be used for flushing.

What if the toilet can't be flushed at all because of blockage?

The following options may be available to householders whose toilets cannot be used:

- It may be possible and practicable to use the facilities of unaffected family, friends, neighbours, public toilets, rest centres, local shops, supermarkets and hotels. Chemical toilets ("portaloos") may be provided in your area.
- Portable bag in bag products (e.g. "Brief relief", "wag bag") designed for solid and urine waste may be provided in your area. Once used according to manufacturers' instructions, the waste bag should be placed inside another bag, such as a bin liner, and disposed of in the usual way.

If I don't have mains water how should I bottle feed my baby?

If your drinking water supply is either interrupted or contaminated by the flooding and you need to prepare formula feed for a baby, it is important to be careful with the water you use. Here are some tips from the Food Standards Agency on preparing formula safely.

- Ideally use water from a bowser (a water tank provided by water companies), or bottled water, brought to a 'rolling' boil and left covered to cool for no more than half an hour, then follow the manufacturer's instructions on making up the feed. The use of unboiled bowser water should be avoided.
- Use cooled boiled water or bottled water for cooling the feed once it has been made up. Ready-to-feed liquid formula could be used instead.
- If there is no electricity or gas to allow boiling and you don't have ready-to-feed liquid formula available, bottled water (table, spring or mineral water) can be used without boiling to prepare baby feeds, but the prepared feed should then be used immediately.
- Any bottled water supplied by your water company will comply with all drinking water standards and will be safe to use in preparing baby feed. If you buy your own bottled water, be aware that some natural mineral water may have a high sodium content. Look at the label for sodium or `Na' and check its level is not higher than 200mg a litre. If it is, then try to use a different water. If no other water is available, then use this water for as short a time as possible. It is important to keep babies hydrated.

How do I bathe my child without mains water?
If the water company has advised that the domestic supply is unsafe for drinking, then it is inadvisable to use this for bathing infants. In this situation, boiled bowser water, or bottled water, are safe alternatives. A safe alternative to bathing is to use baby wipes for hand cleansing and washing infants.

Can I use water for my contact lenses?
Tap water or bowser water should never be used for cleaning or storing contact lenses since this could cause a rare but serious eye infection.

Last reviewed: 28 July 2008

Annex B – Media Announcements

The general public will receive information about potential flooding from various different media sources.

Residents in the London Borough of Richmond upon Thames can obtain information from radio and TV sources, as well as:

- Environment Agency website www.environment-agency.gov.uk
- Met Office website www.metoffice.gov.uk
- LBRuT website (in event of extreme weather) www.richmond.gov.uk
- CommunitySafe
  Message system providing real-time advice and information from Police and local council. For further information please visit www.communitysafe.gov.uk
- Community TV
  Found in ten places across the borough:
  RFU Rugby Store
  Twickenham Station
  Teddington Memorial Hospital Walk in Centre
  Richmond Station
  Marks & Spencer (Kew Retail Park)
  Richmond College
  Civic Centre
  Hampton Open Air Pool
  Marks & Spencer (Richmond)
  Sheen Lane Centre

Annex B1 – Environment Agency Flood Warning Codes (Advice for General Public)

EA Flood Warning	Explanation	What to do
	Flooding of low lying land and roads is expected. Be aware, be prepared, watch out.	▪ Monitor local news and weather forecasts. ▪ Be aware of water levels near you. ▪ Be prepared to act on your flood plan. ▪ Check on the safety of pets and livestock. ▪ Charge your mobile phone.
	Flooding of homes and businesses is expected. Act now!	▪ Move cars, pets, food, valuables and important documents to safety. ▪ Get flood protection equipment in place. ▪ Turn off gas, electricity and water supplies if safe to do so. ▪ Be prepared to evacuate your home. ▪ Protect yourself, your family and help others. ▪ Act on your flood plan.
	Severe flooding is expected. There is extreme danger to life and property. Act now!	▪ Collect things you need for evacuation. ▪ Turn off gas, electricity and water supplies if safe to do so. ▪ Stay in a high place with a means of escape. ▪ Avoid electricity sources. ▪ Avoid walking or driving through flood water. ▪ In danger call 999 immediately. ▪ Listen to emergency services. ▪ Act on your flood plan.
	Flood watches or warnings are no longer in force for this area.	▪ Keep listening to weather reports. ▪ Only return to evacuated buildings if you are told it is safe. ▪ Beware sharp objects and pollution in flood water. ▪ If your property or belongings are damaged, contact your insurance company. Ask their advice before starting to clean up.

Annex B2 – Met Office Severe Weather Warnings

Severe and Extreme Weather Definitions	
Severe	These events are not unusual and are experienced on a number of occasions throughout the year, but more commonly in the winter months. They will impact on individual areas, but often not significantly.
Extreme	These events are unusual and only happen around 3 or 4 times per year. They have a significant impact on infrastructure and may lead to casualties.

Met Office Severe Weather Warning Service	
Advisories	Indicate a risk of between 20%-60% of severe or extreme weather occurring anywhere in the UK over each of the next 5 days. They are published daily by 1100hrs on the Met Office website.
Early Warnings	Indicate a risk of 60% or greater of widespread disruption. They are issued several days in advance.
Flash Warnings	Indicatie a risk of 80% or above of severe or extreme weather occurring in the UK. They usually give a minimum 2hours notice. Warnings are issued for every affected county and unitary authority.

Traffic Light Warning System	
Green	No Severe Weather Expected
Yellow	BE AWARE There is a moderate risk of severe or a low risk of extreme weather occurring. Remain alert and ensure you access the latest weather forecast.
Amber	BE PREPARED There is a high risk of severe or a moderate risk of extreme weather occurring. Remain vigilant and ensure you access the latest weather forecast. Take precautions where possible.
Red	TAKE ACTION There is a high risk of an extreme weather event occurring. Remain extra vigilant and ensure you access the latest weather forecast. Follow orders and any advice given by authorities under all circumstances and be prepared for extraordinary measures.

Annex B3 – CommunityTV Slide Template

This template is currently being developed.
Please speak to Borough Contingencies Unit.

Annex C – Sandbag Policy

Richmond Council does not issue sandbags to residents or businesses for defence of property.

Residents wishing to obtain sandbags should visit their local builders' merchant.

Further information on flood protection can be found on the Environment Agency web site:
http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx

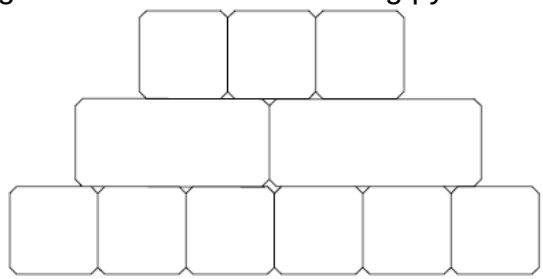
There are a number of web sites offering flood defence products to protect homes and offices. People who are serious about protecting their property should explore the practicality of the alternatives to sandbags.

Richmond Borough does not provide endorsement to flood protection products. It is for the purchaser to decide if a specific product is suitable to their needs. The British Standards Institute now awards the BSI Kite mark to products they have tested and approved. This is a quality assurance check by an independent body and is only issued to products that meet the manufacturer's claims as proved by rigorous testing.

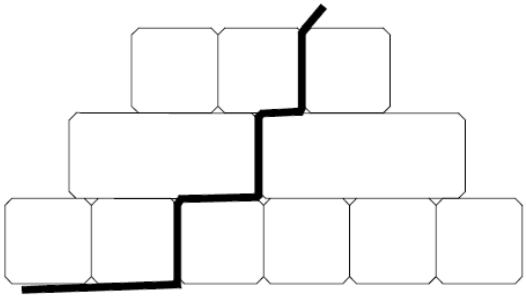
Annex D – Building a Sandbag Wall

If using sandbags it is essential to fill the sandbags correctly. They must not be over-filled. Sandbag walls should never be constructed with a vertical face, but should be laid in a pyramid shape with never less than two rows at the top of the pyramid. Sandbag walls are not waterproof, but waterproofing can be achieved using plastic sheeting which is threaded through the layers. Avoid placing any of the outside wall in the direction of the water.

Sandbag wall cross-section showing pyramid formation:



Location of plastic waterproofing sheeting:



Richmond Council does not issue sandbags to residents or businesses for defence of property.

Annex E – Template Situation Reports

Situation Reports should be distributed at JESCC, Silver Group and include impact maps where they have been compiled.

- Major Incident declared?

- Type of flooding
  Fluvial, tidal, surface water etc.

- Community area at risk…….
  List by ward area, rough guess at percentage of area affected

- Localised hazards
  For example fast flowing water, exposed man hole covers,
  Rough guess of flood water depths

- Access issues to include rail, road, bridge and traffic status updates
  Closures, diversions, indication of length of time of disruption
  Special attention given to areas of stranded commuters, travellers

- Health and safety issues for responders

- Fire update of flood incident related responses to date

- Police update of flood incident related responses to date

- Ambulance update of flood incident related responses to date
  Number of casualties treated, areas of high numbers, receiving hospitals

- RNLI update of flood incident related responses to date
  Number of rescues, key focus areas

- Local Authority update of flood incident related responses to date
  Location of rest/reception centres, areas protected by sandbags/defences
  Damage reports on buildings, road & bridges
  Traffic flow

- PCT update of flood incident related responses to date

Annex F – Template Silver Coordinating Group Agenda

This template can be used as an actual agenda, virtual agenda or a checklist for agencies.

- Introductions

- Situation report on current flood risk
  - River flooding Environment Agency
  - Surface water flooding Local Authority

- Potential impact assessment to include
  - Extent of potential flooding and approximate depth, speed and cause
  - Request impact maps to be compiled
  - Vulnerable people and vulnerable site lists
  - Total number of residents, businesses, transient population in affected area
  - Critical infrastructure sites within flood zones to be identified
  - Liaise with utilities on areas of possible/likely disruption

- Traffic management plan
  - Potential evacuation routes (pedestrian/road)

- Location of emergency shelters as required clear of risk area

- River safety issue

- Environmental impact assessment

- Environmental Health Teams

- Utilities

- Environment Agency

- Health Protection Agency

- Port of London Authority

- Water contaminants

- Location of industrial sites in flooded area

- Flood mitigation methods (sandbags / barriers)
  - Areas currently protected
  - Areas requiring protection
- Escalation policies/procedures

- Forecasting of weather conditions

- Public information required
  - Information to be provided by each agency
  - Methods/channels to be used

- Media management

Annex G - Glossary of Terms

ABBREVIATION	TERM
AOD	Above Ordinance Datum
BECC	Borough Emergency Control Centre
BTP	British Transport Police National police force for the railways
BRONZE	Operational Bronze will control and deploy the resources of their respective service within a geographical sector or specific role and implement the tactics defined by Silver.
Careline	The Out of Hours Emergency Contact Number for the Local Authority. By calling this number emergency services can contact a DEO
CMT	Crisis Management Team
CNI	Critical National Infrastructure
CBR(N)	Chemical Biological Radioactive (Nuclear)
DH	Department of Health
DEFRA	Department for Environment, Food and Rural Affairs
DEO	Duty Emergency Officer This is a Local Authority officer who is available out of hours to help coordinate the local authority response.
EA	Environment Agency
GOLD	Strategic level Gold is the commander in overall charge of each service, responsible for formulating the strategy for the incident. Each Gold has overall command of the resources of their own organisation, but delegate tactical decisions to their respective Silver(s).
GO	Regional Government Office
HPA	Health Protection Agency
HSE	Health and Safety Executive
HA	Humanitarian Assistance
LALO	Local Authority Liaison Officer
LAS	London Ambulance Service
LBRuT	London Borough of Richmond upon Thames
LESLP	London Emergency Services Liaison Panel
LFB	London Fire Brigade
LFB-EP	London Fire Brigade – Emergency Planning
LLACC	London Local Authority Coordination Centre
LRF	Local Resilience Forum
LRT	London Resilience Team
MAFP	Multi Agency Flood Plan
MCA	Maritime and Coastguard Agency
MEF	Media Emergency Forum

MPS	Metropolitan Police Service
PCT	Primary Care Trust
PPE	Personal Protective Equipment
RCG	Recovery Co-ordinating Group
RIO	Richmond Information Online LB RuT Intranet
SCG	Strategic Co-ordinating Group
SFRA	Strategic Flood Risk Assessment
SILVER	Tactical Silver will attend the scene, take charge and be responsible for formulating the tactics to be adopted by their service to achieve the strategy set by Gold. Silver should not become personally involved with activities close to the incident, but remain detached.
SOP	Standard Operating Procedure
SSSI	Site of Special Scientific Interest's
TfL	Transport for London

For further information about any of the above abbreviations please email emergency.planning@richmond.gov.uk

Annex H – Bibliography

Civil Contingencies Act (2004)
http://www.ukresilience.info/preparedness/ccact.aspx

HM Publication Emergency Preparedness (2005)
http://www.ukresilience.info/preparedness/ccact/eppdfs/aspx

HM Publication Emergency Response and Recovery (2005)
http://www.ukresilience.info/response/ccact/errpdfs.aspx

HM Publication National Recovery Guidance
http://www.ukresilience.info/response/recovery_guidance.aspx

Evacuation and Shelter Guidance HM Publication
http://www.ukresilience.gov.uk/~/media/assets/www.ukresilience.info/evac_shelter_guidance%20pdf.ashx

DEFRA Guidance on Planning for Major Water and Wastewater Incidents (2006)
http://www.ukresilience.gov.uk/~/media/assets/www.ukresilience.info/water_guidance%20pdf.ashx

DEFRA Guidance on Multi Agency Flood Plan

LESLP Major Incident Procedure Manual
http://www.leslp.gov.uk/docs/Major_incident_procedure_manual_7th_ed.pdf

EA Local flood Warning Plan for the Greater London Metropolitan Police Area (2008)

EA Local flood Warning Plan for the Surrey Area (2008)

EA website: http://www.environment-agency.gov.uk/?lang=_e
LB RuT website: http://www.richmond.gov.uk/home.htm

Annex I – Resources

Personnel	Equipment / Resources
Metropolitan Police Service	
Minimum no. within the RuT during the day: 1 x Inspectors 3 x Sergeants 12 x Constables	Richmond Police Station Twickenham Police Station Teddington Police Station
London Fire Brigade	
Minimum no. within the RuT during the day:	Richmond Fire Station Pump Ladder, Hose Laying Lorry Twickenham Fire Station Pump Ladder, Command Unit
London Borough of Richmond Upon Thames	
Maximum no. within RuT throughout the day: 11 x LALOs 13 x DEOs 1 x Rest Centre Manager 7 x Day Care Centre Managers 51 x REST Volunteers Approximately 3000 council staff	Gulley Sucker Emergency Response Vehicles REST Boxes Welfare supplies 1 x Borough Emergency Control Centre 7 x Day Care Centres throughout RuT: 6 x Emergency Accommodation Providers 11 x Public Council Offices
Red Cross	
Maximum number across London: 700 x Emergency Response Volunteers	5 x Emergency Response Units (P3 Patient / Uninjured Survivor) 9 x Fast Response Vehicles 3 x 4x4 Fast Response Vehicles 14 x Frontline Ambulances 2 x Comms Vehicles (VHF, UHF, Mobile Data, IT & Phone Systems) 1 x 7.5 ton Emergency Support Tender 4 x 3.5 tonne Equipment Support Vehicle (Rest Centre Equipment for 200 people)

Although resources may be stated above this does not guarantee their attendance at an incident nor does it limit the response that may attend an event.

Appendix J – Key Infrastructure at Risk

Key Infrastructure	Address		Key Infrastructure	Address
Emergency Services Stations				
Transport Links				
Local Authority Offices				
PCT Premises				
Nurseries/Pre-Schools				
Primary Schools				
Secondary Schools				
Colleges				
Independent Schools				

Annex K – EDF Energy Network Draft Flood Plan

Flood Working Group
EDF Energy Networks - Draft for Flood Plan

Flood Risk Assessments

EDF Energy Networks have identified all our grid and primary substation sites within flood zones 2, 3a and 3b[1] as indicated on the Environment Agency flood maps and all sub surface grid and primary substations in London. Those at risk from dam inundation, groundwater flooding and surface water flooding have not yet been identified.

About a quarter of our grid and primary substations across the East of England and South East are in flood zones 2 and 3. We have initiated a project with the Environment Agency to quantify the flood risk at these sites. We will complete this project by the end of 2008 and the output will be a prioritised list of sites at risk. We will review and refine the list as more data is incorporated.

In the short term we will use this list to identify sites to be protected during flooding and in the longer term to influence flood mitigation strategies.

EDF Energy Networks staff will carry out a dynamic risk assessment prior to carrying out temporary flood mitigation and whenever the circumstances change during a flooding incident.

Planning Assumptions

We will not put staff safety at risk during flooding.

If we are unable to protect our substations, or if defences are threatened, breeched or overtopped, then we will switch off supplies to the substations[2] to prevent catastrophic failure and withdraw staff from the area. It is usually easier to clean, dry and refurbish equipment switched off before flooding than it is to repair or replace equipment left live which catastrophically fails when flooded.

If we have suitably experienced staff on site to monitor the situation, we will switch off the supply when:

1. substations are flooded to a depth where water ingress into critical areas is imminent or occurring;
2. we receive reports that flood water has reached electricity meters or termination equipment in customer's premises;
3. we receive reports that flood water has inundated street furniture such as traffic lights, street lights, traffic bollards etc.

Loss of supply may affect areas not impacted by flood water.

EDF Energy Networks will use information provided by the Met Office[3] and Environment Agency[4] together with site specific risk data to determine which sites to protect during flood risk periods.

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[1] PPS 25 does not cover local distribution substations. We will consider these sites later.
[2] The area and customers normally supplied from the substation will also be without power. We may restore some supplies from alternative supplies if we are certain of the extent of the flooded area.
[3] Met Office forecasts, daily risk assessments, NSWWS warnings, ERAs, and forecasters

EDF Energy Networks have sand, sandbags, flood bags and temporary flood barriers and trained personnel to install this equipment. It is worth noting that to deploy and erect temporary flood barriers can take in excess of twelve hours in adverse conditions. In widespread flooding we will not be able to protect all sites at risk and so will usually prioritise those most at risk. We will use the available information to determine what sites to protect. If there is insufficient notice to deploy temporary protection or insufficient confidence in the warnings we will not be able to protect the threatened sites.

Where there is an immediate risk to the safety of the general public, our staff, or catastrophic failure of our plant and equipment, supplies may be disconnected without warning. The decision to turn off supplies would be made in conjunction with any Silver or Gold teams if possible.

We may not always be aware of localised flooding. Electricity supplies may remain live in such situations and there may be an increased risk of electrocution if people touch electrical equipment such as street furniture, light switches or damp walls close to sockets and switches. It can take some time (hours) for suitable staff to get to site safely and isolate supplies. Supplies should always be treated as live until it is confirmed they have been isolated.

Roles and Responsibilities

The role of EDF Energy Networks in flooding is as follows:

- To operate and manage a safe electricity network;
- To restore to normal the electricity network as quickly and safely as possible after flooding.

EDF Energy Network is responsible for the electricity distribution network. If distribution plant and equipment, cables and lines are damaged by flood water then once the flood waters recede we will carry out works to restore supplies and carry out repairs as quickly and safely as possible.

We cannot restore supplies until we have checked our equipment in all those premises supplied from the substation or low voltage cable. This means that we usually restore supplies in batches.

After flooding EDF Energy Networks will require access to all flooded properties to check, repair or replace the EDF Energy Networks termination equipment as appropriate. If we cannot gain access to all the properties to check the equipment then we cannot restore supplies. The customers' electricity supplier is responsible for checking and changing the meter but the supplier may ask us to do this work for them.

The customer is responsible for arranging for the testing, repair and re-commissioning of their electrical wiring and equipment.

When EDF Energy Networks check the termination equipment we will also carry out some basic checks on the customer's installation at our service termination to ensure that it is safe to reconnect the supply. If it is unsafe to reconnect, we will disconnect the supply by removing our supply fuse and affixing warning notices and give the

[4] Environment Agency Outlook, Flood Warnings and EA flood forecasters and operational teams

customer a form detailing why we have disconnected the supply, and the actions they should take to get the supply reconnected.

EDF Energy Networks will reconnect the supply when the installation has been repaired and tested and the customer's electrician provides a Building Regulation Part P Electrical Safety test certificate.

Where a large area is affected we will discuss the restoration strategy with the Gold, Silver or recovery group as appropriate to align the restoration strategy with community needs as far as technical and operations constraints allow.

We carry emergency stocks of materials for this type of event and we have established, tried and tested mutual aid agreements with other Distribution Network Operators to provide resources and materials under these circumstances if required.

Assistance

EDF Energy Networks will concentrate on the management and operation of the electricity distribution network.

All EDF Energy Networks operational staff are trained to work in the vicinity of water and carry out dynamic risk assessments for this work and about fifty staff are trained to work in knee deep slow moving water. Appropriate PPE is available for these activities. However, where it is likely that flood water will be deeper or fast flowing then EDF Energy Networks staff will withdraw to safe ground unless they are under the personal supervision of trained water rescue teams, for example Fire and Rescue water rescue teams.

Although we have access to some flood mitigation equipment we may require assistance with the provision and operation of high volume water pumps, provision and erection of temporary flood barriers and sandbags to protect key substations. Electricity substations are hazardous environments and no attempt to enter them, or protect them, should be made without EDF Energy Networks presence on site.

In the event that mobile phone communications are affected EDF Energy Networks will deploy satellite telephones but Silver liaison officers may require access to AIRWAVE radios at the discretion of the emergency services.

Assistance may also be required to:

- identify suitable strategic holding areas in the vicinity of the flooding;
- to escort plant and materials to the site;
- to clear any vehicles parked in the vicinity of the site preventing the erection of flood mitigation; and
- to move staff in boats across flooded areas to sites etc.

After the flood waters have receded, some police assistance may also be required to ease the entry to flooded properties to enable our teams to check the service termination and metering equipment. As we have a legal right to enter properties this does not usually require significant police assistance.

Annex L – TfL Buses Draft Borough Flood Plan

Roles and Responsibilities in response

1. London Buses have a number of operational plans that can be implemented to use available vehicles for evacuation from an incident area. Working with other transport operators buses can be used to evacuate large numbers of people to other parts of London either directly or via railway stations for longer distances to locations outside the Greater London area. Vehicles can also be deployed in small numbers for local evacuation within a borough to a rest centre.

2. The use of any buses will be dependent on the incident and its location, any road closures that have or might be implemented, the availability at the time of vehicles and drivers and requirement to maintain their health and safety at all times.

3. Requests for buses to assist with evacuation should be directed to either
   - The London Buses Network Command and Control Centre - CentreComm,
   - Or via the MPS at New Scotland Yard,
   - Or at the borough's Silver Coordinating group meeting.
   - Or if a Strategic Command Centre (SCC) has been activated by the MPS via the Gold Command.

4. London's bus services are currently provided by contracted operators who as part of their contract are required to follow instructions from the Network Operations Command and Control Centre known as CentreComm when an emergency incident has or is likely to occur that effects normal bus operations.

5. London Buses use the LESLP protocols of command and control and have Gold, Silver and Bronze managers available 24 / 7, 365 days a year. CentreComm is managed at all times by a Network Duty Manager who can arrange for the activation of operational plans following consultation with the On Call Duty Manager or will arrange for the attendance of a manager at a designated location to attend a Silver Coordinating group meeting.

6. Manage incident through tried and tested incident management procedures.

7. Depending on the incident and its severity, London Buses can implement an operational plan to either divert or curtail bus routes away from or around an incident area. This plan known as "Operation Bus – Stop" can be implemented and adjusted as required until normal bus operations can be resumed.

Follow up Actions

1. London Buses will monitor and manage the incident situation using tried and tested incident management procedures and will adjust bus operations as and when possible to return them to as near normal operations as quickly as possible. This will be dependent on roads reopening, vehicles and drivers being available and bus garages being operational for fuel and essential vehicle maintenance.

2. Managers will continue to attend meetings to liaise with other responders to offer and seek assistance as required.

Recovery

1. Return bus services to normal operation.

2. Managers will attend meetings of any recovery cell to assist with the recovery plans.

Resources
London Buses will deploy managers as required to manage the incident both at command and control levels and on the ground to assist other responders and the general public.
London Buses will deploy buses to assist with evacuation but this will be dependent on the incident and its location, any road closures that have or might be implemented, the availability at the time of vehicles and drivers and requirement to maintain their health and safety at all times.

Chris Edney.
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Network Operations - London Buses
January 2009

Annex N - Resilience Partners Communications Plan

Re-moved from Plan