

APPENDIX D

Flood Zone 3 Factsheet

East Anglia (East)

Oct 2017 - v.6

This factsheet provides information to assist with the preparation of a Flood Risk Assessment (FRA) in support of development proposals reviewed by the East Anglia (East) teams, based at Ipswich. It should be read alongside the Environment Agency's general FRA advice ([FRA Guidance note 3](#)). For information relating to proposals managed by East Anglia (West) teams based at Brampton, please contact: planning.brampton@environment-agency.gov.uk.

This factsheet covers issues relating to FRAs only and does not address other matters we may take into account when considering development proposals (e.g. proximity to a watercourse, contaminated land, Water Framework Directive and biodiversity requirements). For further information on those issues, please contact: planning.ipswich@environment-agency.gov.uk

Sequential Test and Exception Test

The Local Planning Authority (LPA) will need to be satisfied that the proposed development passes the flood risk Sequential Test, and if applicable, the first part of the Exception Test, in line with requirements of the National Planning Policy Framework (NPPF). We therefore strongly suggest you speak to them prior to commencing work on an FRA. Information regarding the [aim of the Sequential Test](#), [applying the Sequential Test](#) and the [Exception Test](#) can all be found in the Practice Guide supporting the NPPF.

Inappropriate development

[Table 2](#) of the Practice Guide categorizes developments according to their vulnerability and [table 3](#) sets out which vulnerabilities are inappropriate in Flood Zone 3. You should be aware that we are likely to object in principle where it is indicated that a development is not compatible in Flood Zone 3. Please note that Flood Zone 3b is defined by the Local Planning Authority's Strategic Flood Risk Assessment, or by the 5% (1 in 20 year) modelled flood outlines and levels held by the Environment Agency.

More detail on what should be in the FRA (additional to that highlighted in Guidance Note 3):

The FRA should assess all sources of flooding and provide sufficient information on the characteristics of flooding at the site, such as frequency, depth, velocity, speed of onset, and duration. As a minimum the FRA needs to assess the flood risk on site by comparing our modelled flood levels with a GPS verified topographical survey of the site to determine the anticipated flood depths during the 5% (1 in 20), 1% / 0.5% (1 in 100 / 200) (design) and 0.1% (1 in 1000) (extreme) events including allowances for climate change. Climate change allowances can be found on [our website](#). If the area is protected by defences then the FRA should consider both the actual flood risk to the site through overtopping of the defences, and the residual risk posed by the defences being breached.

- **Sequential approach on site**

If the site contains a range of Flood Zones, the sequential approach should be applied within the site to direct development to the areas of lowest flood risk. If it isn't possible to locate all development in Flood Zone 1, then the most vulnerable elements should be located in the lowest risk parts of the site.

- **Finished Floor Levels**

Proposals for 'more vulnerable' development should include floor levels set no lower than 300 mm above the level of any flooding that would occur if defences were overtopped in a 1% / 0.5% flood event (including allowances for climate change). Safe refuge should also be provided above the 0.1% undefended/breach flood level. We are likely to raise an objection where these requirements are not achieved.

We recommend 'less vulnerable' development also meets this requirement to minimize disruption and costs in a flood event. If this is not achievable then it is recommended that a place of refuge is provided above the 0.1% flood level. Where safety is reliant on refuge it is important that the building is structurally resilient to withstand the pressures and forces (hydrostatic and hydrodynamic) associated with flood water. The LPA may need to receive supporting information and calculations to provide certainty that the buildings will be constructed to withstand these water pressures.

- **Safe Access**

During a flood, the journey to safe, dry areas completely outside the extent of a 1% / 0.5% flood event (including allowances for climate change), should not involve crossing areas of potentially fast flowing water. Those venturing out on foot in areas where flooding exceeds 100 millimetres or so would be at risk from a wide range of hazards, including, for example unmarked drops, or access chambers where the cover has been swept away. Safe access and egress routes should be assessed in accordance with the guidance document '[FD2320 \(Flood Risk Assessment Guidance for New Developments\)](#)'.

- **Emergency Flood Plan**

Where safe access cannot be achieved, or if the development would be at actual flood risk or residual risk of flooding in a breach, an emergency flood plan must be provided. The plan should deal with matters of evacuation and refuge, and should demonstrate that people will not be exposed to flood hazards. The emergency flood plan should be submitted as part of the FRA and will need to be agreed with the Local Planning Authority.

- **Flood Resilience / Resistance Measures**

To minimize the disruption and cost implications of a flood event we encourage development to incorporate flood resilience/resistance measures up to the extreme 0.1% climate change flood level.

Information on preparing property for flooding can be found in the documents '[Improving the Flood performance of new buildings](#)' and '[Prepare your property for flooding](#)'.

- **Betterment**

Every effort should be made by the applicant to improve the flood risk to the local area, especially if there are known flooding issues. Opportunities should also be taken to provide environmental enhancements as part of the design, for example naturalizing any rivers on the site with a buffer zone on both sides.

- **Increases in Built Footprint (excluding open coast situations)**

It will need to be shown that any increase in built footprint within the extent of a 1% flood event (including allowances for climate change), can be directly compensated for on a volume-for-volume and level-for-level basis to prevent a loss of floodplain storage. If there are no available areas for compensation above the design flood level and compensation will not be possible, then a calculation of the offsite flood risk impacts will need to be undertaken. If this shows significant offsite impacts then no increases in built footprint will be allowed. Further guidance on the provision of compensatory flood storage is provided in section A3.3.10 of the CIRIA document C624.

Flood Defence Consent

Flood Defence Consents now fall under the Environmental Permitting (England and Wales) Regulations 2010 system (EPR). You may need an environmental permit for flood risk activities if you want to do work in, under, over or within 8 metres of a fluvial river or any flood defence structure or culvert / 16m from a tidal river or any flood defence structure or culvert. New forms and further information can be found at: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>.

Local policies and recommendations

You will need to demonstrate to the Local Planning Authority that the requirements of any local flood risk planning policies have been met and the recommendations of the relevant Strategic Flood Risk Assessment, Shoreline Management Plans and Catchment Flood Management Plans have been considered.

Further Information:

If you require the flooding information we hold for this site then please email our local Customers and Engagement Team: enquiries_eastanglia@environment-agency.gov.uk. For further details on our flood map products please visit our website at: www.environment-agency.gov.uk/research/planning/93498.aspx.

APPENDIX E

Mr Ray Rulewski
ray@crucial.plus.com

Our ref: CCN/2013/34982
Our ref:

Date: 20 August 2013

Dear Mr. Rulewski,

Flood Hazard Mapping – 47 Low Lane, Holbeach, PE12 7PW

Thank you for your request for copies of our flood hazard mapping for the above location.

Hazard Mapping – Breaching

Enclosed with this letter is a plan showing the location of the breaches we have modelled, together with two plans showing the maximum values of flood depth, velocity and hazard rating (danger to people) for the following scenarios:

- Year 2115 0.5% (1 in 200) chance event
- Year 2115 0.1% (1 in 1000) chance event

Your site is not affected by breaching for the 0.5% (1 in 200), 0.1% (1 in 1000) chance events in 2006.

Hazard Mapping – Overtopping

Your site is not affected by overtopping for the 0.5% (1 in 200), 0.1% (1 in 1000) chance events in 2006. Or for the 0.5% (1 in 200) and 0.1% (1 in 1000) chance events in 2115.

Please note that the modelling completed to date, does not include overtopping along the following tidal river: Welland (upstream of Fosdyke Bridge).

It is important that you read the contextual notes on the maps.

All information is provided subject to the enclosed notice, which you should read.

If you have any queries about the hazard mapping please contact Sarah Hilton using the telephone/email details below. Please quote our CCN reference number in all correspondence where data is referenced.

Yours sincerely



FOR John Ray
Coastal Partnerships and Strategic Overview Team Leader

Direct dial 01733 464373
Direct fax 01522 785018
Direct e-mail sarah.hilton@environment-agency.gov.uk

Enc.
FRA/FCA Advisory Text
Breach Location Plan
Breach Hazard Maps x 2
Standard Notice

APPENDIX F

NOTES

1. The potential flooding consequences shown on this map relate to flooding from the sea, main rivers and internal drainage board systems taking into account the presence of current flood risk management measures as such as sea walls, levees, flood walls, etc.
2. In addition to the potential flood extents shown on this map, there may be shallow flooding in low-lying rural areas.
3. The consequences designated as being an Actual Risk arise from direct overtopping of defences, where this would occur, together with assumed internal drainage board systems. The map shows the potential for flooding in places where the inundated between peak sea or river water level and the defences crest level is less than the minimum desirable for structural integrity of the defences.
4. The map is designated as being a Potential Risk area where direct overtopping of defences, where this would occur, together with breach failure, which is assumed, could occur at any point along the defences.
5. The potential flooding consequences relate to flood probability bandings as follows:

Probability Band	Annual probability of Flooding from a river (banks) from the sea (total)
Low	<0.1%
Medium	0.1%-0.1%
High	>0.1%

6. Functional floodlights encompasses areas where water is contained to flow or be stored in lines of flood.
7. Land outside South Holland District is not considered.
8. This map shows the extents only of the flooding probability bands relevant to the map. This

Map Legend

Flooding probability bands

- High
- Low or medium, but reliant on protection by flood defences for the immediate
- Functional Floodlight
- South Holland District Boundary

0 3 6 Kilometers

REV DATE REMARKS

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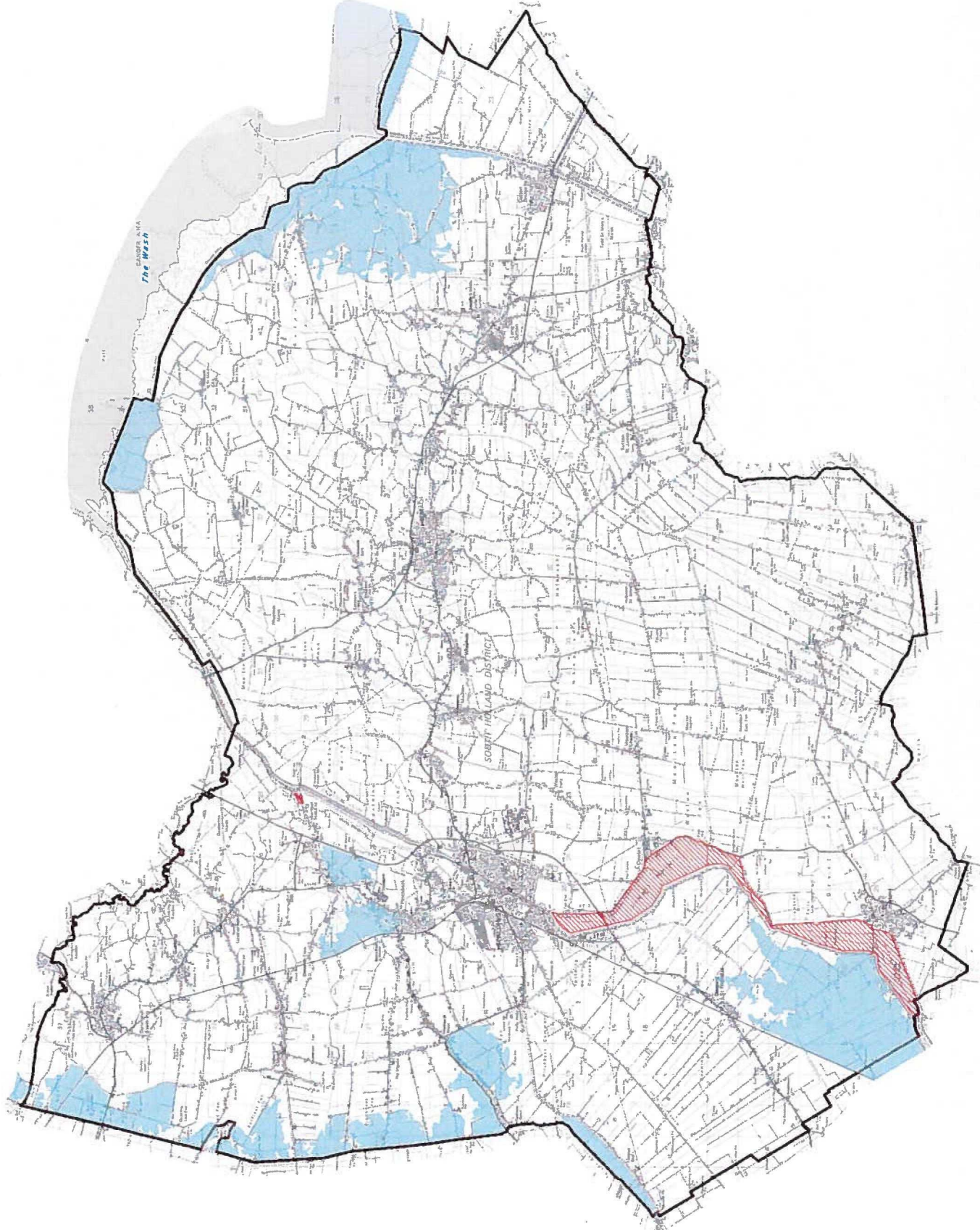
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SOUTH HOLLAND DISTRICT COUNCIL
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UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Actual Risk Extent
District - Present day
1% Fluvial / 0.5% Tidal Event Probability

DATE OF ISSUE: Jan 2010
SCALE: 1 : 60,000 @ A1
MAP NO: 5
REV NO:



NOTES

1. The potential flooding consequences shown on this map relate to flooding from the sea, main rivers and internal drainage board systems taking into account the presence of current flood risk management measures such as sea walls, flood defences, etc.
2. In addition to the potential flood extents shown on this map, there may be smaller flooding in low lying rural areas.
3. The consequences designated as being an Actual Risk arise from direct overtopping of defences, where this would occur, together with assumed internal drainage board systems. The consequences designated as being a Potential Risk arise from assumed overtopping of defences, where this would occur, together with assumed internal drainage board systems. The difference between peak sea or river water level and the defence crest level is less than the minimum desirable for structural security of the defence.
4. The consequences designated as being a Potential Risk, where they arise from assumed overtopping of defences, where this would occur, together with assumed internal drainage board systems, which is assumed could occur at any point along the defences.
5. The potential flooding consequences relate to flood probability bandings as follows:

Probability Band	Annual probability of Flooding from a river (river)	Annual probability of Flooding from the sea (sea)
Low	<0.1%	<0.1%
Medium	1%-0.1%	0.5%-0.1%
High	>1%	>0.5%

6. Functional floodplain encroachment areas where water is intended to flow or be stored in times of flood.
7. Land outside South Holland District is not considered.
8. This map shows the contents only of the flooding probability bands relevant to the map title.

Map Legend

Flooding Probability Bands



REV DATE REMARKS

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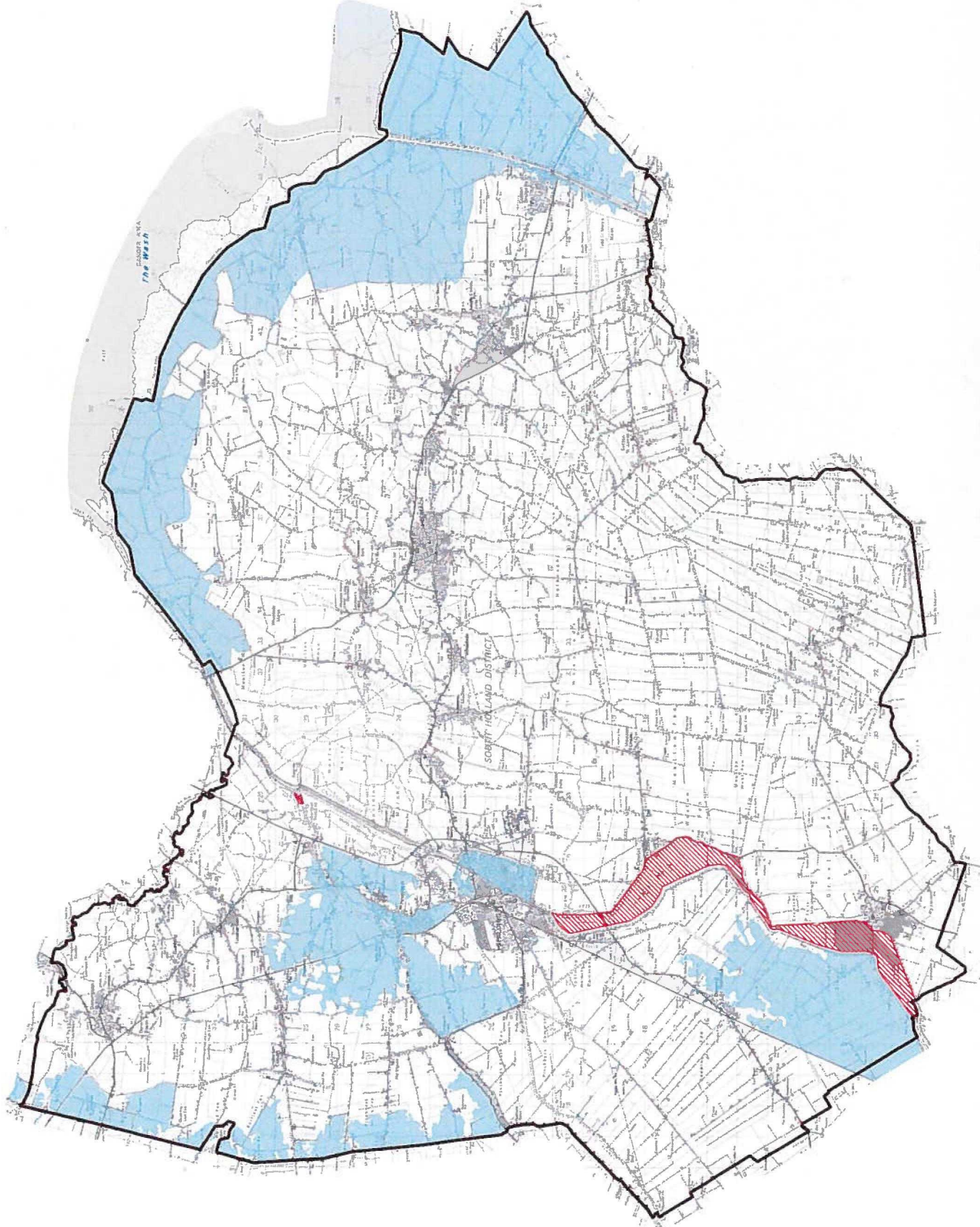
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SOUTH HOLLAND DISTRICT COUNCIL
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UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Actual Risk Extent
District - Year 2055
1% Fluvial / 0.5% Tidal Event Probability

DATE OF ISSUE: Jan 2010	REV NO:
SCALE: 1: 60,000 @ A1	MAP NO: 12





NOTES

- | Probability Band | Annual probability of Flooding from a river (dives) | Annual probability of Flooding from the sea (dives) |
|------------------|---|---|
| Low | <0.1% | <0.1% |
| Medium | 1% - 0.1% | 0.5% - 0.1% |
| High | >1% | >0.5% |

3. Functional floodplain encompasses areas where water is intended to flow or be stored in times of flood.

Flooding Probability bands



REV	DATE	REMARKS
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**SOUTH
HOLLAND
DISTRICT COUNCIL**

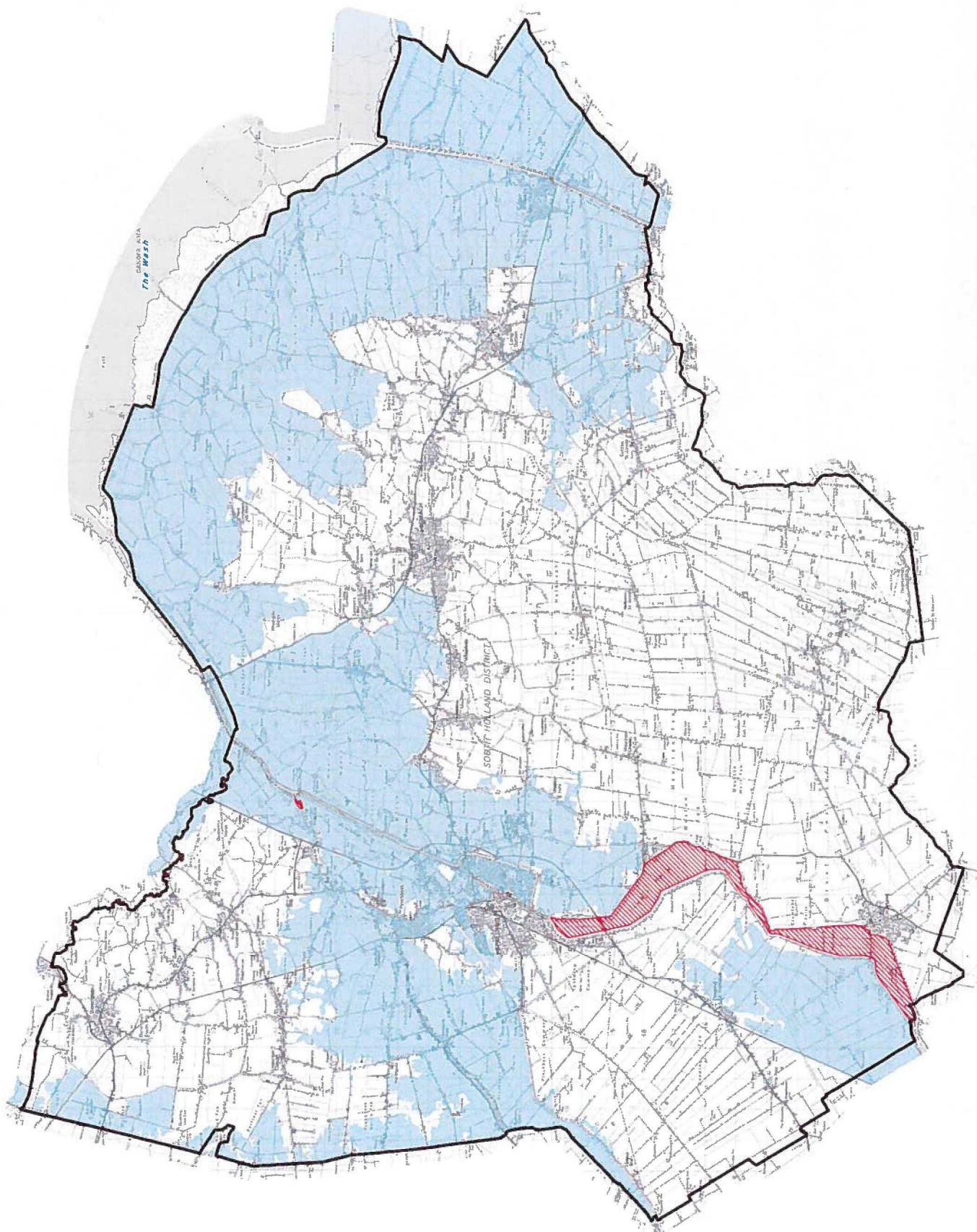
SOUTH

SOUTH HOLLAND

Actual Risk Extent
District - Year 2115
1% Fluvial / 0.5% Tidal Event Probability

DATE OF ISSUE: Jan 2010

SCALE:	MAP NO:
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APPENDIX G

Flood warnings - know what to do?



**FLOOD
ALERT**

PREPARE

- Prepare a bag that includes medicines and insurance documents
- Visit **flood-warning-information.service.gov.uk**



**FLOOD
WARNING**

ACT

- Turn off gas, water and electricity
- Move things upstairs or to safety
- Move family, pets and car to safety



**SEVERE
FLOOD
WARNING**

SURVIVE

- Call 999 if in immediate danger
- Follow advice from emergency services
- Keep yourself and your family safe

APPENDIX H

Personal flood plan

Name



Are you signed up to receive flood warnings?

If not call Floodline on 0345 988 1188 to see if your area receives free flood warnings.

☐

Let us know when you've completed your flood plan by calling Floodline on **0345 988 1188**. This will help us learn more about how people are preparing for flooding.

General contact list	Company name	Contact name	Telephone
Floodline	Environment Agency		0345 988 1188
Electricity provider			
Gas provider			
Water company			
Telephone provider			
Insurance company and policy number			
Local council			
Local radio station			
Travel/weather info			

Key locations

Service cut-off	Description of location
Electricity	
Gas	
Water	

Who can help/who can you help?

Relationship	Name	Contact details	How can they/you help?
Relative			
Friend or neighbour			

Be prepared for flooding. Act now

Personal flood plan

What can I do NOW?



Put important documents out of flood risk and protect in polythene

☐

Look at the best way of stopping floodwater entering your property

☐

Find out where you can get sandbags

☐

Identify what you would need to take with you if you had to leave your home

☐

Check your insurance covers you for flooding

☐

Make a flood plan and prepare a flood kit

☐

Identify who can help you/ who you can help

☐

Understand the flood warning codes

☐

What can you do if a flood is expected in your area?

Actions	Location
Home	
• Move furniture and electrical items to safety	
• Put flood boards, polythene and sandbags in place	
• Make a list now of what you can move away from the risk	
• Turn off electricity, water and gas supplies	
• Roll up carpets and rugs	
• Unless you have time to remove them hang curtains over rods	
• Move sentimental items to safety	
• Put important documents in polythene bags and move to safety	
Garden and outside	
• Move your car out of the flood risk area	
• Move any large or loose items or weigh them down	
Business	
• Move important documents, computers and stock	
• Alert staff and request their help	
• Farmers move animals and livestock to safety	
Evacuation - Prepare a flood kit in advance	
• Inform your family or friends that you may need to leave your home	
• Get your flood kit together and include a torch, warm and waterproof clothing, water, food, medication, toys for children and pets, rubber gloves and wellingtons	

There are a range of flood protection products on the market to help you protect your property from flood damage. A directory of these is available from the **National Flood Forum** at www.bluepages.org.uk

Be prepared for flooding. Act now