STRATEGIC FLOOD RISK ASSESSMENT – LEVEL 1

August 2008

ROTHER DISTRICT COUNCIL

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1. South Foreland to Beachy Head Shoreline Management Plan
   Final report – January 2006

2. Cuckmere and Sussex Havens Catchment Flood Management Plan 2006

3. Rother and Romney Catchment Flood Management Plan
   Draft CFMP – March 2008
   The consultation period ended 9th June 2008, the adopted version is awaited

4. Medway Catchment Flood Management Plan June 2004
   (affects northern part of Ticehurst Parish only)

5. Pevensey Levels SSSI Water Level Management Plan Review – December 2006

6. Draft Folkestone to Cliff End Flood and Erosion Risk Management Strategy. This Strategy is currently out to consultation. The consultation period ends 15th August 2008.

7. Harbour of Rye Management Plan 2003 – 2007

8. The Rother Catchment Abstraction Management Strategy – May 2006

9. The Rother Catchment Abstraction Management Strategy - Technical Document – September 2005

10. Romney Marshes Area, IDB Members Handbook – August 2006
    (This shows main rivers and petty/lesser sewers for the Rother catchment and Walland Marsh) N.B. This is compiled manually and no electronic version is available.

N.B. 1 to 9 are EA publications
10 is a Romney Marsh IDB publication

SECTION 1

INTRODUCTION

including Geology, Climate Change SUDS, Sequential Test and Exception Test

SECTION 1 - INTRODUCTION

1.1 Under the provisions of PPS25: Development and Flood Risk (together with its Practice Guide – June 2008), local authorities are required to undertake an SFRA in order to provide a detailed and robust assessment of the extent and nature of the risk of flooding in their area.

1.2 The SFRA is required to:

- inform the Sustainability Appraisal of the Council's Local Development Framework (Local Development Framework)
- constitute a vital piece of key evidence that the Local Development Framework requires for the preparation of Development Plan Documents (DPD), in particular the Core Strategy Preferred Options
- help inform the preparation of the Site Specific Allocations DPD and an anticipated Area Action Plan for a new strategic development area
- provide evidence to apply the Sequential Test and Exception Test, as required by PPS25
- inform applicants and development control planners, where development is proposed within existing Development Boundaries, as defined in the Local Plan, that are within a Flood Risk Area.

1.3 **The Practice Guide Companion to PPS25 recommends that SFRAs are completed in two consecutive stages. This provides Rother District Council with tools throughout the LDF and SFRA process sufficient to inform decisions regarding development sites. The two stages are**:

- Level 1 SFRA
- Level 2 SFRA

1.4 **This report is intended as a Level 1 SFRA to present sufficient information to enable Rother DC to apply the PPS25 Sequential Test to potential strategic development areas within their boundary and, where there are no 'more reasonably' available sites, to assist in identifying if application of the PPS25 Exception Test will be necessary**.

Level 1 SFRA – Study Area, Flood Source Review and Data Review

1.5 The objective of the Level 1 SFRA is to collate and review available information on flood risk for the study area. Information has been sought from a variety of stakeholders including the Environment Agency, Southern Water, County Highways, Internal Drainage Board together with from within the Council (Drainage Engineer, Building Control Officer, Planning Department and the Emergency Planning Officer.

1.6 The deliverables from the Level 1 SFRA should be used to complete the Sequential Test. The Sequential Test is to be found at Appendix 12 to this Level 1 SFRA. Where the Sequential Test identifies the potential need to apply the Exception Test, further data collection and/or analysis may need to

Level 2 SFRA

1.7 The purpose of a Level 2 SFRA is to facilitate the application of the Exception Test. The Level 2 SFRA will use information obtained in the Level 1 SFRA where suitable, and additional works where necessary, to generate sufficient information for the application of the Exception Test to those strategic sites which cannot be located in lower flood risk zones for other, wider sustainability, reasons. The particular focus of the Level 2 SFRA will be on tidal flooding and the production of flood depth and hazard maps arising from the failure of existing flood defences.

1.8 The Exception Test is the application of a three part test, as set out in PPS25. The test considers the wider sustainability benefits of the development, whether the site is, where possible, located on previously developed land, and the flood risks to the development to ensure it is safe and does not increase flood risk elsewhere.

1.9 This information will supplement the Level 1 SFRA to provide Rother DC with an evidence base sufficient to inform the strategic planning of the District.

PURPOSE OF A STRATEGIC FLOOD RISK ASSESSMENT

1.10 The purpose of an SFRA is to provide the Local Planning Authority with a tool that will assist in identifying the level of flood risk in the District, to better inform planning decisions.

1.11 An essential part of the SFRA is that it takes into account all types of flooding i.e.,

- Fluvial flooding
- Coastal and tidal flooding
- Estuarial flooding and water courses affected by tide-locking
- Groundwater flooding
- Flooding from overland flows (considering both flood routes/paths and storage)
- Flooding from artificial drainage systems
- Flooding from infrastructure failure

1.12 The SFRA does not have statutory planning status and should be used as a consultation document to assist in the development of Local Development Frameworks, carrying out the PPS25 sequential test and test development allocations with respect to flood risk. It provides a set of tools and flood risk maps to assist the process. The SFRA can also be used to assist in other aspects of planning including Development Control and Emergency Planning, although these are secondary remits.

1.13 The SFRA should be used initially to identify the validity of a potential development against the criteria for flood risk assessment. If the planning application falls within Flood Zone 2 or 3 of the sequential test then the specifics of the proposed development should be addressed in a detailed flood risk assessment.

1.14 The SFRA is a means of understanding the variations of flood risk within the remit of individual local planning authorities.

1.15 In accordance with Annex E of PPS25

Initially the SFRA will be used to refine information on the areas that may flood, taking into account other sources of flooding and the impacts of climate change, in addition to the information on the Flood Map. Decision-makers should use the SFRA to inform their knowledge of flooding, refine the information on the Flood Map and determine the variations in flood risk from all sources of flooding across and from the area. These should form the basis for preparing appropriate policies for flood risk management for the area. The SFRA should be used to inform the Sustainability Appraisal (incorporating the SEA Directive) of the Local Development Documents (LDDs), and will provide the basis from which to apply the Sequential Test and Exception Test in the development allocation and development control process. Guidance on the sequential and exception tests is to be found in chapter 5 of the Practice Guide Companion to PPS25.

1.16 Where decision-makers have been unable to allocate all proposed development and infrastructure in accordance with the Sequential Test, taking account of the flood vulnerability category of the intended use, it will be necessary to increase the scope of the SFRA to provide the information necessary for application of the Exception Test.

1.17 In essence an SFRA provides a better understanding of:

- What may flood:
  Any land use can be affected – Agricultural land, playing fields, residential areas, town centres, power stations etc.

- How it may flood:
  Infrastructure failure e.g., collapse of dams, embankments or sea defence structures or even extreme overtopping. Blocked or under-sized culverts may cause streams to flood. Sewerage systems may become overwhelmed and cause flooding. Wave action caused by storm force winds, periods of prolonged rainfall or a torrential thunderstorm will exacerbate matters.

- Where it may flood:
  Known fluvial or tidal flood risk areas will be prone to flooding problems at times of extreme events, as will areas that suffer from high water tables or poor surface water drainage.

- When it may flood:
  Extreme events are usually the cause of flooding when infrastructure cannot cope. Extreme events may be the result of prolonged storm force winds, causing excessive wave action and/or a tidal surge. Periods of prolonged rain or thunderstorms will cause flooding problems inland. This may be exacerbated by tidal locking.

SCOPE OF THE SFRA

1.18 The Level 1 SFRA will cover the whole of Rother District. Undertaking of the Sequential Test will then indicate the key areas for which a Level 2 SFRA will be required.

1.19 The Level 2 SFRA will need to be carried out for all key areas within a Flood Risk Area where the Council may consider development/redevelopment (including windfalls on brownfield sites) within settlements or consider an extension to the built-up area. In essence, this refers to those villages with an existing Development Boundary, or where one is being considered, which include land within flood zones 2 or 3. Generally speaking, 'Countryside Policies' means that outside of the development boundaries of the towns and villages existing uses shall remain for the most part unchanged. Proposals for new development therein will be required to accord with other relevant statutory plans and policies and, unless there is specific provision in these policies for the proposed form of development to be located in the countryside, the proposals will also be required to demonstrate that a countryside location is necessary for the development.

1.20 The settlements for which a Level 2 Assessment is likely to be required are set out in under 'Level 2' in Section 4. These are principally in coastal areas of the District. In order to undertake the SFRA process within the available time, the Level 2 support studies have been undertaken in advance of the Sequential test. However, the coverage is such that Rother expect all key development areas or allocations to be covered.

1.21 It will also be necessary to re-visit the approved Local Plan policies. A list of 'Local Plan Policies that will need to be reconsidered in light of the SFRA' is found at Appendix 6.

1.22 The scope of the Level 2 SFRA will therefore need to be sufficient to provide the information necessary for the application of the Exception Test (see Annex E of PPS25). In order to judge the Exception Test, the applicant will need to complete a site specific Flood Risk Assessment (FRA) to demonstrate (including information on detailed design) that the development can be made safe. The SFRA may give an indication of whether an area may include sites which can pass the Exception Test but conversely may identify sites where it is unlikely that the Exception Test can pass.

1.23 The Level 2 SFRA scope will be carried out in accordance with paragraphs 2.36 to 2.40 of the 'Practice Guide Companion to PPS25'. This will provide an assessment of the relative risk of discrete flood compartments. The Kent and East Sussex Area of the Environment Agency have also advised on this matter.

AIMS AND OBJECTIVES OF A STRATEGIC FLOOD RISK ASSESSMENT

1.24 An SFRA furnishes an LPA with appropriate information on flood risk, so that due consideration is given to flood risk when undertaking:-

- Spatial Planning
- Defining Planning Policies
- Setting Planning Constraints
- Development Briefs
- Masterplans

1.25 The SFRA aims to prevent development in unsuitable locations by assisting the LPA in determining areas of varying flood risk. In practice the SFRA provides risk maps that will be used to inform planning decisions.

1.26 The overall aim is to reduce the risks to people and both the built and natural environment from flooding.

1.27 The key requirements of a SFRA are summarised in paragraph D4 and Annex E of PPS25. The SFRA should provide sufficient data and information to enable the LPA to apply the Sequential Test to land use allocations and, where necessary, the Exception Test. In addition, the SFRA will allow LPAs to:

- prepare appropriate policies for the management of flood risk within the LDDs
- inform the sustainability appraisal so that flood risk is taken account of when considering options and in the preparation of strategic land use policies
- identify the level of detail required for site-specific FRAs in particular locations, and
- enable them to determine the acceptability of flood risk in relation to emergency planning capability

RELEVANT NATIONAL POLICIES AND PROGRAMMES

PPS25 'Development and Flood Risk' December 2006
This is the Government's principal policy statement on development and flood risk

PPS25 Development and Flood Risk : Practice Guide – June 2008 – Communities and Local Government.

Chapter 2 - Taking flood risk into account in the planning process

Chapter 3 - The assessment of Flood Risk

Flood Risk Management Hierarchy
Figure 3.1 – Source-Pathway-Receptor Model for PPS25
Figure 3.2 – Key sources of flooding
Figure 3.3 – Annual probabilities of flooding associated with PPS25 Flood Zones
Figure 3.4 - Scope and responsibilities for F.R.A's
Paragraphs 3.35 to 3.69 – SFRA
Figure 3.5 - Levels of FRA
Figure 3.6 - Typical Sources of Information

Chapter 4 - The Sequential and Exception Tests

Chapter 5 - Managing surface water

Chapter 6 - Risk management by design

Chapter 7 - Residual risk

Circ. 04/2006 The Town and Country Planning (Flooding) (England) Direction 2007

The Annex defines a flood risk area

"flood risk area" means –

(a) land in an area within Flood Zones 2 or 3; or
(b) land in an area within Flood Zone 1 which has critical drainage problems and which has been notified for the purposes of article 10 of the Order (a) to the local planning authority by the Environment Agency.

PPS1 supplement- Planning and Climate Change – Communities and Local Government December 2007

Cabinet Office
The Pitt Review – Learning Lessons from the 2007 Floods – 17th December 2007

EA - Standing Advice Development and Flood Risk – England – March 2007.

DEFRA/EA - Flood Risk Assessment Guidance for New Development Phase 2: Framework and guidance for Assessing and Managing Flood Risk for New Development – full Documentation and Tools. R and D Technical Report FD 2320/TR2 (Final Draft 2005).

CIRIA - Development and flood risk – guidance for the construction industry – C624 report

DEFRA/EA - Benchmarking of hydraulic river modelling software packages. R and D report WS-105.

The South East England Regional Assembly (SEERA) has published its Regional Flood Risk Appraisal (RFRA), to inform the South East Plan.

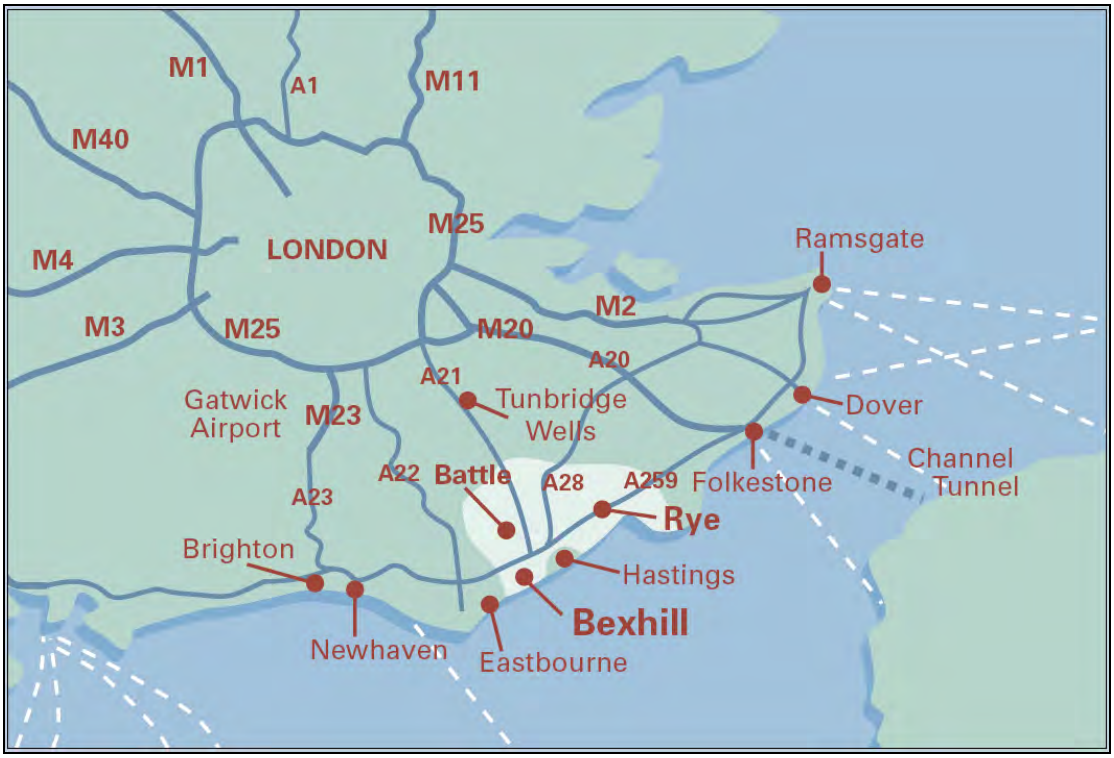
The RFRA was published in November 2006. In summary it:-

- Highlights broad areas within South East England where high growth and flood risk coincide.

- Demonstrates how flood risk has been taken into account throughout the development of the South East Plan.

The document was produced retrospectively (to the draft S.E. Plan). Although mention is made of the Sussex Coast, there is no specific mention of any settlements within Rother District. It merely states that SFRA's will inform the Local Planning Authorities LDFs.

A. LOCATION AND GEOGRAPHY (including geology)

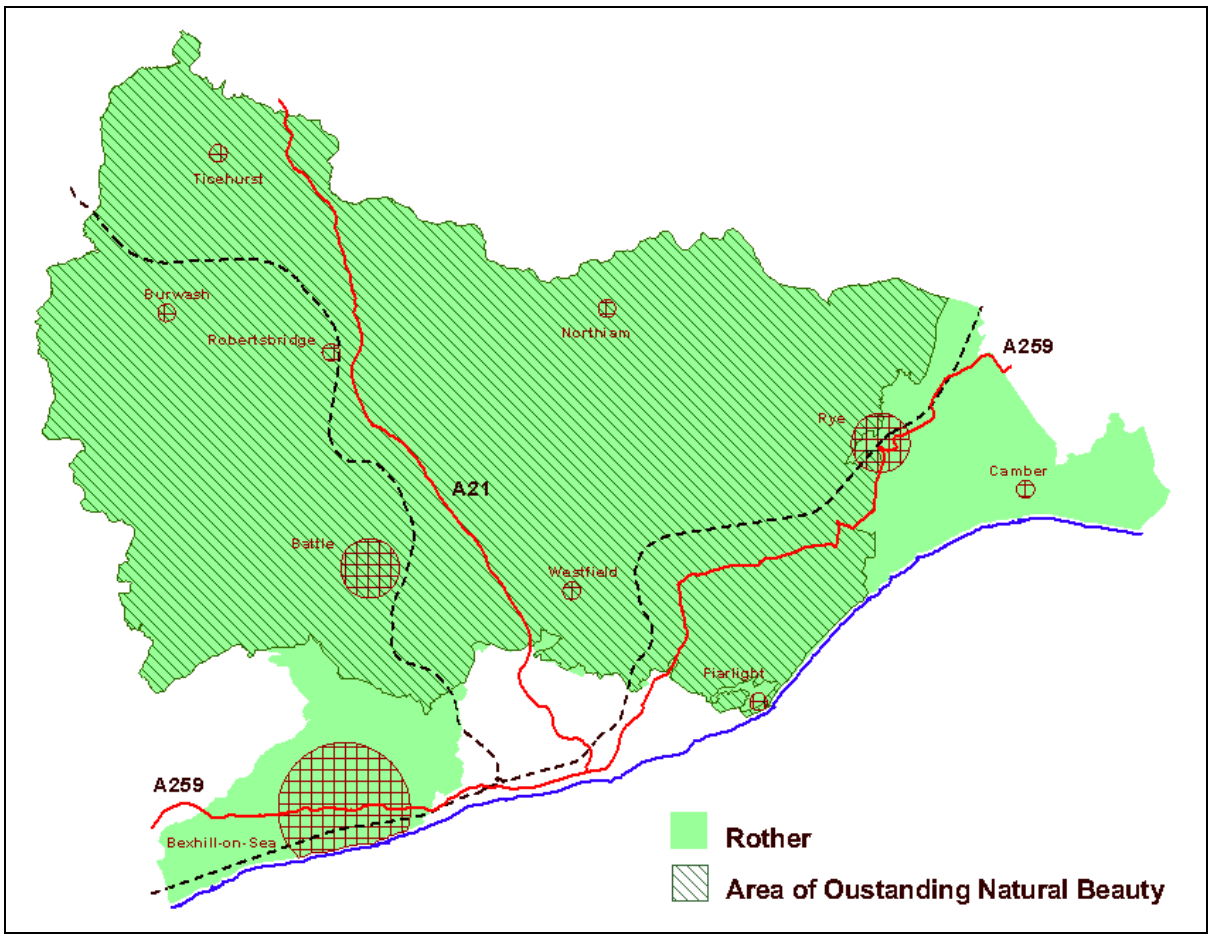


Source: Rother District Council

1.28 Rother District is located in the easternmost part of East Sussex. It is a coastal district that also extends inland well into the High Weald.

1.29 The District derives its name from the River Rother, which traverses the northern part of the area to reach the English Channel at Rye. It covers some 200 square miles (51,140 hectares), and has a population of 86,505 inhabitants (ESCC mid 2007 estimate).

Rother District - Main settlements, road and rail links, and AONB



Source: Rother District Council

Landscape and Natural Features Character Areas

1.30 **82% of Rother lies within the High Weald. Its ridges and valleys largely define Rother's landscape, with the highest ridge traversing the District from Dallington in the west, dipping towards the sea at the cliffs at Fairlight to the east**.

1.31 Bexhill, together with the low-lying coastal levels to the west, and the reclaimed land around Rye and Camber to the east, are distinct landscape areas.

Extract of the Natural England's Natural Areas Map

- 122 - The High Weald
- 123 - The Romney Marshes
- 124 - The Pevensey Marshes

Source: A Natural England

1.32 These broadly based "Character Areas" defined as part of a national series take into account landscape, wildlife and natural features.

The High Weald

The High Weald developed on one particular outcrop, the Hastings Beds, which provides the foundation for the character of its landscape. Over a period of 140 million years clays, silts and sands were continually deposited over swamp. The land has risen and has been eroded. Now the underlying sandstones and clays, known as the Hastings Beds have become what is now known as the 'High Weald'.

The sandstones and clays have had a profound influence on the development of the High Weald. Different rates of erosion of different beds of rock have produced the typical ridges and steep ghylls which characterise the area.

The Hastings Beds, especially the Wadhurst clays contain the ore which supplied the Wealden iron industry until the nineteenth century. The sandstones and clays supported great oak trees. The stone, clay and timber provided the building materials used in the construction of ships and houses, for which the Weald was famous.

The Pevensey Marshes

The Pevensey Levels underwent repeated changes during the Middle Ages. Farmland that had been created from the sea was largely lost to successive floods in the late Middle Ages and not regained until the more tranquil weather and expanding economy in Elizabethan and early Stuart times. The struggle of medieval marshmen to erect bordering dykes against the water and build sluices, tide-gates and water lets, so turning soggy, black earth into rich fields, has left many visible vestiges on the ground.

A medieval activity which has left its own impression on the Levels is salt making. The ravages of the sea led to the abandonment of much of the Pevensey Levels during the later Middle Ages and wreaked havoc at its ports. Northeye, once a busy harbour and a limb of the Cinque Port of Hastings was lost to the sea, but is now well inland.

The Romney Marshes

Strictly speaking, the marsh area within Rother District is more correctly known as the Rother Levels and Walland Marsh.

The marshes consist of shingle, alluvium and sands. They are characterised by a complex drainage system based upon a series of private ditches flowing to a network of Internal Drainage Board sewers and main rivers. These include the Rivers Rother, Brede and Tillingham and the Royal Military Canal. The area contains several national and international designated sites and protected habitats, whose features are influenced by changes in water level and flow.

Winchelsea and Rye were both important ports. Winchelsea had been built as a replacement town for the first Winchelsea, situated on the marshes, but destroyed by a severe storm in 1287. However, by the 16th century, because of the silting of its harbour and impoverishment by plagues and French raids it had declined significantly. In the 14th century one of the main activities at Winchelsea has been the importing of wine from Bordeaux.

Rye was also a thriving port, but smaller than Winchelsea until the decline of Winchelsea from the fourteenth century. Iron, wool and foodstuffs to London were the main commodities exported by Rye and her imports were mainly coal and grain.

Most of the District falls within the catchment of the River Rother, draining into the sea near Rye, while the south-western areas are drained by the Combe Haven, Egerton Park Stream Bexhill, and Wallers Haven. The Heathfield – Battle ridge separates the main catchments.

ALLOWANCE FOR PREDICTED CLIMATE CHANGE:

1.33 The SFRA should take into account the predicted increases in rainfall, storm events and sea level rise. The following two tables are extracted from Annex B to PPS25.

Table B.1 Recommended contingency allowances for net sea level rise

Administrative Region	Net Sea Level Rise (mm/yr) Relative to 1990			
	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
East of England, East Midlands, London, SE England (south of Flamborough Head)	4.0	8.5	12.0	15.0
South West	3.5	8.0	11.5	14.5
NW England, NE England (north of Flamborough Head)	2.5	7.0	10.0	13.0

Notes:

1. For deriving sea levels up to 2025, the 4mm/yr, 3mm/yr and 2.5mm/yr rates (covering the three groups of administrative Regions respectively), should be applied back to the 1990 base sea level/year. From 2026 to 2055, the increase in sea level in this period is derived by adding the number of years on from 2025 (to 2055), multiplied by the respective rate shown in the table. Subsequent time periods 2056-2085 and 2086-2115 are treated similarly.
2. Refer to Defra FCDPAG3 *Economic Appraisal Supplementary Note* to *Operating Authorities - Climate Change Impacts,* October 2006, for details of the derivation of this table. In particular, Annex A1 of this Note shows examples of how to calculate sea level rise.
3. Vertical movement of the land is incorporated in the table and does not need to be calculated separately.

Table B.2 Recommended national precautionary sensitivity ranges for peak rainfall intensities, peak river flows, offshore wind speeds and wave heights.

Parameter	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak rainfall intensity	+5%	+10%	+20%	+30%
Peak river flow	+10%	+20%		
Offshore wind speed	+5%		+10%	
Extreme wave height	+5%		+10%	

Notes:

1. Refer to *Defra FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change impacts, October 2006*, for details of the derivation of this table.
2. For deriving peak rainfall, for example, between 2025-2055 multiply the rainfall measurement (in mm/hour) by 10 per cent and between 2055-2085 multiply the rainfall measurement by 20 per cent. So, if there is a 10mm/hour event, for the 2025-2055 period this would equate to

N.B. At the SFRA Inception meeting on 26th November 2007 the Environment Agency suggested that climate change could be represented by using Flood Zone 3 for Flood Zone 2. In addition, for the purpose of the Level 1 SFRA the functional floodplain should be regarded as Flood Zone 3a.

MANAGING SURFACE WATER (including Sustainable Drainage systems – SUDS

1.34 The Practice Guide Companion to PPS25 advises on developing a surface water management strategy for new development. This includes Sustainable Drainage systems (SUDS).

1.35 Traditionally, built developments have utilised piped drainage systems to manage surface water and convey surface water run-off away from developed areas as quickly as possible. Typically these systems connect to the public sewer system for treatment and/or disposal to local watercourses. Whilst this approach rapidly transfers surface water from developed areas, the alteration of natural drainage processes can potentially impact on downstream areas by increasing flood risk and reducing water quality.

1.36 Due to the difficulties associated with upgrading sewer systems, it is often the case that sewer and drainage systems do not keep pace with the rate of development/redevelopment and the increasingly stringent drainage discharge restrictions that are being placed upon them. As development continues and/or urban areas expand these systems can become inadequate to deal with the volumes of surface water that is generated, resulting in increased flood risk and/or pollution to watercourses. Allied to this are the implications of climate change and increasing rainfall intensities.

1.37 SuDS also have wider sustainability advantages by creating opportunities for landscaping and incorporation of habitats for wildlife.

1.38 SuDS techniques can be used to reduce the rate and volume and improve the water quality of surface water discharges from sites to the receiving environment (i.e., natural watercourses or public sewers etc.). Various SuDS techniques are available and operate under two main principles:

- Infiltration, and;
- Attenuation.

1.39 Due consideration should be given to appropriate SuDS techniques throughout preparation and development of the overall drainage strategy for individual development sites. A ground investigation will be required in order to determine whether infiltration techniques are feasible or whether attenuation techniques are more appropriate. The volume of on-site storage required should be calculated through hydrological analysis using industry approved procedures to ensure that a robust design storage volume is provided.

1.40 During the design process, liaison should take place with Rother DC, the Environment Agency and if necessary, Southern Water to establish a satisfactory design methodology and permitted rate of discharge from the site.

1.41 The application of SuDS is not limited to a single technique per site. In fact, the most successful SuDS solutions often utilise a combination of techniques, in order to provide flood risk, pollution and landscape/wildlife benefits. In

EMERGENCY PLANNING – FLOOD WARNING

1.42 The Council's Emergency Planning Officer is currently amending the Rother District Flood Warning system. In future it is to be based on five Community Flood Warning areas:

- The Tidal Rother including Rye and Rye Harbour
- The Coast from Fairlight to Dungeness
- The River Rother between Mayfield and Newenden
- The River Brede between Sedlescombe and Rye
- The River Tillingham between Beckley Furnace and Rye

1.43 More details, including maps to show the coverage of the proposed five Community Flood Warning areas are to be found in Appendix 9.

SECTION 2

METHODOLOGY

including Approach

SECTION 2

METHODOLOGY (including The Approach)

The Approach

The Local Development Scheme provides for the publication of the Core Strategy – Policy Directions, in Autumn 2008 for consultation. It is a requirement that the document is informed by a Strategic Flood Risk Assessment (SFRA). Rother District Council is working closely with Hastings Borough Council in the preparation of the Core Strategy. Following on from the Core Strategy – Policy Directions, preparation of the Site Specific Allocations DPD will commence and will also need to be informed by the SFRA. This may well also require more specific Flood Risk Assessment (FRA's).

In addition an SFRA is needed now to inform applicants and development controllers, where development is proposed within the Development Boundaries, as defined in the Local Plan, that are wholly within a flood risk area e.g., Camber, Rye Harbour, Winchelsea Beach, Pett Level and Norman's Bay. There are also settlements with Development Boundaries that are partially within a flood risk area e.g., Rye, Winchelsea, Robertsbridge, Etchingham and Crowhurst. Small areas of Bexhill are also within a flood risk area.

The application of the sequential and exception tests is set out in Chapter 3 of the Practice Guide Companion to PPS25. The key stages in taking flood risk into account in the preparation of LDD's are shown at the end of this Section.

LEVEL 1

Scope: To be carried out in accordance with the Practice Guide Companion to PPS25, as amended by local need.

The Level 1 SFRA contains up-to-date information on the state of the coastal defences and river defences.

Although not in a Flood Risk Area (FRA), mention is made, briefly, of Fairlight Cove, because of its coastal erosion, geology and excessive surface water run-off.

Review status and contracts of SFRA's for neighbouring Local Planning Authorities i.e., Hastings Borough Council, Eastbourne Borough Council, Wealden District Council, Tunbridge Wells Borough Council, Ashford Borough Council and Shepway District Council.

Output: To be carried out in accordance with the Practice Guide Companion to PPS25.

The Level 1 SFRA has been carried out for the whole District. It also indicates where a Level 2 assessment is expected to be required on completion of the Sequential Test. The Level 1 assessment indicates which engineering solutions to flood risk may be feasible and which ones may be considered. The information gathered should be sufficient to allow application of the Sequential Test and inform the Sustainability Appraisal and subsequent plan policies.

When the town/village Development Boundaries, as set out in the adopted Local Plan are reviewed as part of the LDF process a decision will need to be taken on whether certain village/town Development Boundaries can remain. Some villages, such as Norman's Bay have recently been given protection from the 1 in 400 year extreme tidal event, while that part of Rye on the eastern side of the River Rother (including the Kings Avenue area and the Freda Gardham Primary School) has an existing standard of protection well below the 1 in 200 year extreme tidal event. In such cases the retention of the existing Development Boundaries would have to be justified by a Sequential Test.

A decision will also need to be made on the Development Boundaries to Etchingham, Crowhurst and Robertsbridge as some parts are within the Flood Risk Area (FRA), and whether a Level 2 assessment is to be required.

As well as requiring up-to-date information on the state of coastal and river defences, similar information will be required on the various flood compartments behind them.

N.B. The SFRA documents as a whole should provide a long-term commitment to include regular updating over time and to be sufficiently robust to withstand challenge throughout the plan period. Regular review and updating will be required to reflect changing circumstances.

Methodology

- The different forms of flooding to be considered in an SFRA are to be found at Annex C of PPS25.

- There must be evidence that the Sequential Test has been applied – it is a test of soundness. (see Annex D of PPS25).

- The Assessment of Flood Risk, the general principles involved and specific reference to SFRAs is to be found at Annex E of PPS25.

- The Managing of Surface Water including Drainage Systems is to be found at Annex F of PPS25.

- The Managing of Residual Flood Risk, including development behind existing defences, developer contributions, flood resistance, Flood Resilience and Flood Warning and Evacuation Plans are to be found at Annex G of PPS25

- The Roles and Responsibilities of all the parties involved in an SFRA are to be found at Annex H of PPS25.

- The necessity to take into account the effects of Climate Change are to be found at Annex B of PPS25.

- The necessity to take into account the Government's Aims for Sustainable Development are to be found at Annex A of PPS25.

- Review strategic flood risk issues at catchment/development plan scale.

- Review records of past flood events (including depths).

- Review flood risk factors including defence standards.

- Review hydrology (including how permeable and how steep) and drainage of the plan area.

- Ascertain impact of climate change on flood risk and standard of protection required.

- Ascertain the impact of development on flood risk in the plan area and surrounding areas (consult Hastings, Wealden, Shepway, Ashford and Tunbridge Wells, Kent County Council and East Sussex Country Council).

- Acknowledge the preferred use of Sustainable Drainage Systems (SUDS).

- Review other relevant strategic documents/guidance.

- Need to consider all sources of flooding including natural and artificial sources.

- Need to consider current and future flood risk, likelihood and consequences.

Annex E of PPS25 includes a summary of the methodology for preparing a SFRA.

Methodology requirement:

In local authority areas where flooding is not a major issue and where development pressures are low, a less detailed approach is required i.e., Level 1 SFRA. However where there is high development pressure and flooding is a significant issue a more detailed approach is required i.e., Level 2 SFRA. A Level 2 SFRA would therefore appear appropriate for substantial parts of Rother District, particularly as there is a likely need to apply the Exception Test. The Exception Test is likely to be needed due to there being an insufficient number of suitably available sites for development within zones of lower flood risk.

A more detailed assessment of the scope for flood risk in connection with an SFRA is set out in Chapter 2 of the Practice Guide companion to PPS25.

The Key Stages in taking flood risk into account in the Planning Process Local Development Documents (LDD's).

Extracted from paragraphs 2.19 to 2.23 of 'Planning Policy Statement 25 : Development and flood risk Practice guide – June 2008'.

2.19 LDDs should deliver national and regional policy, while also taking account of specific local issues and concerns. The Core Strategy LDD should reflect the Council's strategic planning policies and approach to flood risk. Site allocations should reflect the application of the Sequential Test, as well as guidance on how flood risk issues should be addressed at sites allocated within flood risk areas. Flood risk should be factored into LDDs in the detailed allocation of land use types across their area. Figure 2.4 illustrates this process.

2.20 PPS25 requires that LPAs prepare Strategic Flood Risk Assessments (SFRAs) (see chapter 3) to an appropriate level of detail to allow the Sequential Test to be applied in the site allocation process. This is an essential part of the pre-production/evidence gathering stage of the plan preparation process. LPAs should consider whether it would be more effective to work jointly with other local authorities and stakeholders to prepare a sub-regional/county SFRA. The SFRA should take into consideration any regional guidance prepared by the RPB.

2.21 The SFRA will provide the baseline information for the Sustainability Appraisal (SA) of LDDs for the scoping and evaluation stages. It will also provide the evidence base for the application of the Sequential Test and the Exception Test in the land use allocation process. The LPA should demonstrate through evidence that it has considered a range of options in conjunction with the flood zone information from the SFRA and applied the Sequential Test, and where necessary the Exception Test, in the site allocation process. This can be undertaken directly or, ideally, as part of the SA. Where other sustainability criteria outweigh flood risk issues, the decision making process should be transparent with reasoned justifications for any decision to allocate land in areas at high risk in the SA report. The process should take account of any locational criteria included in guidance prepared by the RPB.

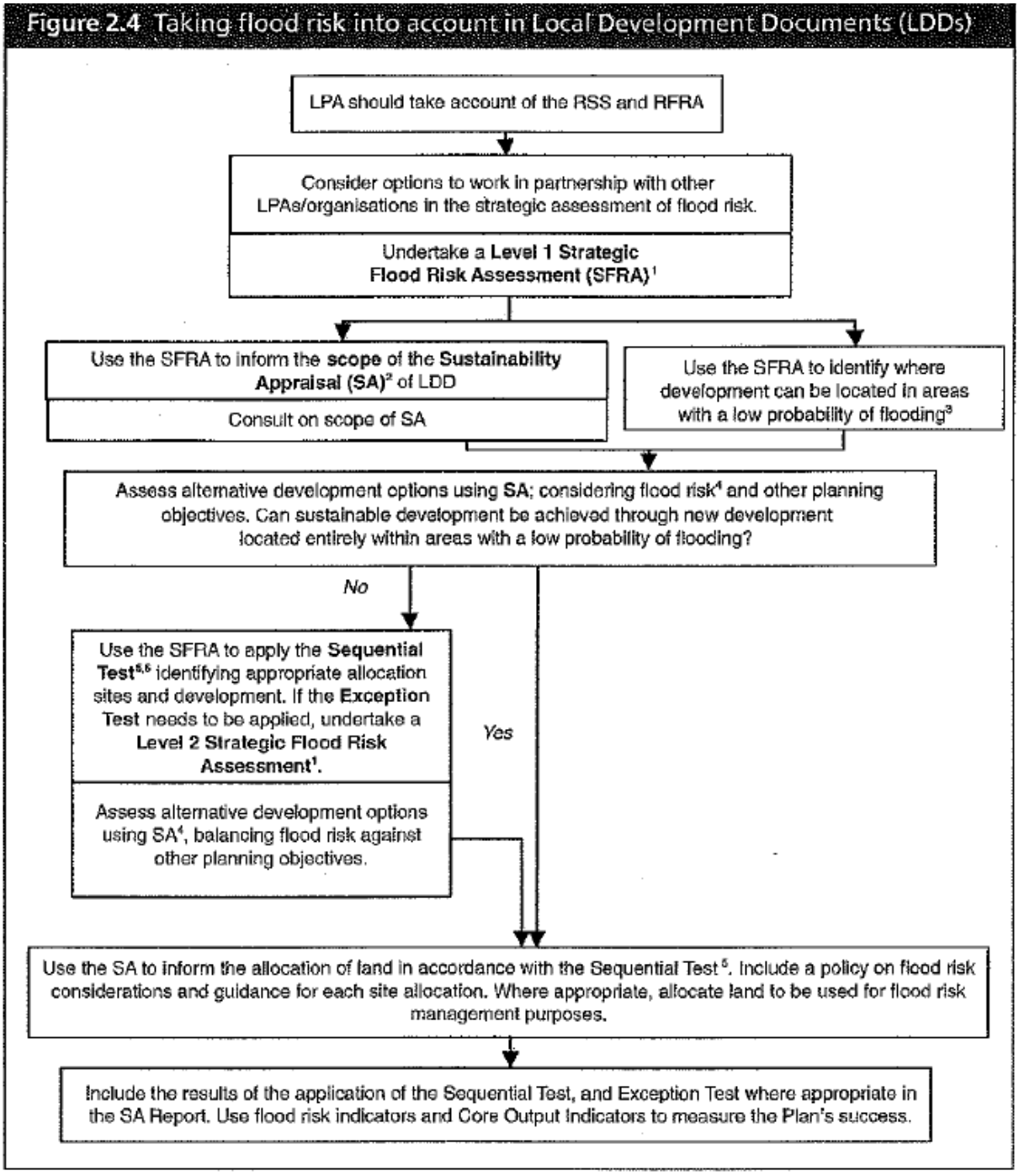
2.22 Site-specific allocations can be made in one or more LDDs. LDDs should identify the specific flood risk related issues which will need to be addressed for certain site allocations when a planning application is submitted for their development.

2.23 Area Action Plans (AAPs) provide the planning framework for key areas of change or conservation. They should identify the distribution of uses and their inter-relationships and include specific site allocations. Again, the allocation of sites in AAPs must reflect application of the Sequential Test and where necessary the Exception Test; with transparent reasoned justifications provided for any decision to allocate land in areas at high risk. AAPs should also highlight the specific flood risk related issues which will need to be addressed for certain site allocations when a planning application is submitted for their development, e.g. through criteria based policies on design and location of development.

2 LDDs comprise Development Plan Documents and Supplementary Planning Documents. Development Plan Documents are part of the 'development plan', may allocate land for development, and are tested at independent examination. Supplementary Planning Documents may expand policies set out in a Development Plan Document or provide additional detail. They must not be used to allocate land because they are not subject to independent examination. Although only the term LDD is used in this document and in most cases it will be referring to a Development Plan Document, the distinction above must be borne in mind.

Extracted from Planning Policy Statement 25 : Development and Flood Risk Practice Guide – June 2008

Figure 2.4 Taking flood risk into account in Local Development Documents (LDDs)



Notes

1 Guidance on undertaking a SFRA can be found in chapter 3.

2 Guidance on developing the scope of SA can be found in ODPM (2005) *Sustainability Appraisal of Regional Spatial Strategies (RSS) and Local Development Documents (LDD)*. Guidance on suitable flood risk indicators can be found in *Flood Risk Assessment Guidance for New Development FD2320, D2.1*.

3 Flood Zone 1 for fluvial and tidal flooding and with a low risk of flooding from other sources.

4 Including an assessment of the potential effect of proposed development on surface water run-off.

5 Including consideration of the variability of flood risk within a Zone.

6 Including in broad terms, consideration of the variability of flood risk within a flood zone from existing SFRAs.

SECTION 3

FLOOD RISK ASSESSMENT

SECTION 3

3. FLOOD RISK ASSESSMENT

This section gives a synopsis of the different causes of flooding experienced within Rother District, with an emphasis on infrastructure and the developed areas. It includes current and proposed standards for defences.

It should be noted that the Environment Agency estimates that, with Rother District, some 3,092 properties are at risk to flooding.

Plans showing areas of development that are affected by flood risk areas are shown at Appendix 2.

There are 2 sets of plans. One set shows Flood Zone 2 (2007) and one set shows Flood Zone 3 (2007).

Each plan shows, where applicable:

- the Local Plan (2006) Development Boundary
- the Local Plan (2006) development allocations

In Appendix 2 plans are provided for:

- Rye
- Rye Harbour
- Harbour Road, Rye
- Camber
- Crowhurst
- Etchingham
- Fairlight Cove
- Normans Bay
- Pett Level
- Robertsbridge
- Sedlescombe
- Three Oaks
- Winchelsea and Winchelsea Beach
- Bodiam (no development boundary)
- Jury's Gap (no development boundary)
- Cooden Beach (West Bexhill)
- Watermill (north of Bexhill) (no development boundary)
- Pebsham/Glyne Gap (east Bexhill)

3.1 TIDAL FLOODING

3.1.1 Tidal flooding within Rother District is addressed in the South Foreland to Beachy Head Shoreline Management Plan (Final Report – January 2006). It will also be the subject of detailed flood mapping at the Level 2 SFRA stage.

3.1.2 At the present time the Folkestone to Cliff End Flood and Erosion Management Strategy is in preparation and a consultation draft is due to be published in Spring 2008.

Summary by Policy Unit

Policy Unit 4c14 : Lydd Ranges: (including Coastguard Cottages at Jury's Gap)

SMP Policy:	2006 – 2025 -	Managed Realignment
	2025 – 2055 -	Managed Realignment
	2055 – 2105 -	Managed Realignment

3.1.3 Since the SMP was published, the MoD now requires all of the ranges land and cannot accept any managed retreat. All the land behind the Green Wall is required. This change of policy has been carried forward into the Draft Flood and Erosion Management Strategy, it means that the Coastguard Cottages at Jury's Gap are now protected.

3.1.4 At present the level of defence is as low as 1 in 5 years in places.

3.1.5 The indicative timetable (July 2008) shows construction of the scheme, to provide the 1 in 200 year extreme event protection, from 2014 to 2020.

Policy Unit 4c15 : Jury's Gap to The Suttons

SMP Policy:	2006 – 2025 -	Hold the line
	2025 – 2055 -	Hold the line
	2055 – 2105 -	Hold the line

3.1.6 It is proposed to improve these defences to the 1 in 200 year extreme event standard. At present the standard is as low as 1 in 5 years in places.

3.1.7 The defences will likely take the form of a rock revetment except towards The Suttons where it will be a widened and heightened beach crest.

3.1.8 The indicative timetable (July 2008) shows construction of the scheme, to provide the 1 in 200 year extreme event protection, from 2010 to 2012.

Policy Unit 4c16 : Camber Sands

SMP Policy:	2006 – 2025 -	Hold the line
	2025 – 2055 -	Hold the line
	2055 – 2105 -	Hold the line

3.1.9 This will be accomplished through minimum dune management using sand fencing and pedestrian management. As part of the Level 2 SFRA a Breach Analysis is being undertaken at Central Car Park, Camber, which is considered to be the weakest point in this Policy Unit.

3.1.10 It is proposed to improve the defences to the 1 in 200 year extreme event standard.

3.1.11 At present the dunes form a very good natural defence against inundation from the sea.

Policy Unit 4c17 : River Rother (Mouth of the River Rother to the sluices around Rye)

SMP Policy:	2006 – 2025 -	Hold the line
	2025 – 2055 -	Hold the line
	2055 – 2105 -	Hold the line

3.1.12 It is proposed to improve the defences to the 1 in 200 year extreme event standard.

Eastern Bank: At present the standard is as low as the 1 in 5 years in places and proposals are only at the investigation stage. The areas of Kings Avenue, New Road and the Freda Gardham Primary School at Rye are affected. It is the EA's intention to raise the embankments along the east bank. The EA had advised that there was little prospect of improvements to the defences until 2020. However, in July 2008, the EA advised that the new indicative timetable shows construction of the scheme between 2011 and 2013.

Western Bank: The tidal western bank from Rye Harbour, through Rye, to Scots Float Sluice is protected, to the 1 in 200 year extreme event standard, by the River Rother Tidal Walls and Embankments (West Bank) Scheme. The scheme was completed in Autumn 2007. The majority of the built-up part of Rye now has this standard of protection. The EA propose to improve the defences by raising the west bank structures, if necessary in 50 years time to cope with future sea level rise.

Policy Unit 4c18 : River Rother to Cliff End

SMP Policy:	2006 – 2025 -	Hold the line
	2025 – 2055 -	Hold the line
	2055 – 2105 -	Managed Realignment

3.1.13 A flood defence scheme is currently under way, with completion due in 2010, which will give protection from the 1 in 200 year extreme event. The scheme also involves raising the Harbour Arm. An earth embankment has also been built between Winchelsea Beach and Rye Harbour to form a secondary

Policy Unit 4c19 : Cliff End to Fairlight Cove

SMP Policy:	2006 – 2025 -	No Active Intervention
	2025 – 2055 -	No Active Intervention
	2055 – 2105 -	No Active Intervention

3.1.14 There are no flood risk areas, but the coast is subject to coastal erosion.

Policy Unit 4c20 : Fairlight Cove East (Sea Road)

SMP Policy:	2006 – 2025 -	Managed Realignment
	2025 – 2055 -	Managed Realignment
	2055 – 2105 -	Managed Realignment

3.1.15 There are no flood risk areas but the coast was subject to much coastal erosion until a cliff toe structure (rock bund) was put in place in the 1990s. The cliff has since become more stable, with the clay cliff gradually assuming a natural angle of repose.

Policy Unit 4c21 : Fairlight Cove Central (Rockmead Road)

SMP Policy:	2006 – 2025 -	Hold the Line
	2025 – 2055 -	Hold the Line
	2055 – 2105 -	Managed Realignment

3.1.16 There are no flood risk areas but the coast has been subject to much land slippage and coastal erosion. In December 2007 the 'Fairlight (Rockmead Road) Cliff Stabilisation Scheme' was completed. The scheme involved stabilising the cliffs (including improved drainage), a rock bund to protect the toe of the cliffs and re-profiling the cliff itself.

Policy Unit 4c22 : Fairlight Cove West (Channel View)

SMP Policy:	2006 – 2025 -	No Active Intervention
	2025 – 2055 -	No Active Intervention
	2055 – 2105 -	No Active Intervention

3.1.17 There are no flood risk areas but the coast was subject to some coastal erosion.

Policy Unit 4c26 : Bexhill to Cooden

SMP Policy: 2006 – 2025 - Hold the line
2025 – 2055 - Hold the line
2055 – 2105 - Hold the line

3.1.18 The strategy has been agreed with DEFRA. No properties are within a flood zone (tidal), though a few properties have been affected by some minor overtopping. In 1999 there was some overtopping at Cooden Sea Road, causing some minor flooding. Groynes and a seawall have halted the historic erosion of this shoreline and the policy is to continue with this, protecting the substantial assets. This will be achieved by maintaining and upgrading the existing defences. This will impact on the character of the frontage (Coastal Squeeze) but will protect significant assets from flooding and erosion.

3.1.19 It should be noted that the strategy is to 'hold the line'. The 1 in 200 year extreme event protection is not feasible as this would entail raising the height of the sea wall by up to one metre. Danger by over-topping flood water, not breaching of defences, is more likely.

Policy Unit 4c27 : Herbrand Walk and Normans Bay

SMP Policy: 2006 – 2025 - Hold the line
2025 – 2055 - Hold the line
2055 – 2105 - Hold the line

3.1.20 In 2004 the Pevensey Bay to Cooden Sea Defences were completed, giving protection from the 1 in 400 year extreme event. Importantly the scheme gives protection to the main south coast railway (which had on occasions previously been undermined in extreme conditions), development at Herbrand Walk and at Normans Bay.

(N.B. Plans showing the SMP policy units are to be found in Appendix 3)

3.2 FLUVIAL FLOODING

3.2.1 Fluvial flooding within Rother District is addressed in the Cuckmere and Sussex Havens Catchment Flood Management Plan and the consultative draft Rother and Romney CFMP. A very small part of Rother District is covered by the Medway CFMP.

3.2.2 A schedule showing summaries of historic flooding records, extracted from CRMP publications is attached.

3.2.3 **Summary of the flooding situation (including policy and proposals) in towns and villages affected by fluvial flooding** -

1. Robertsbridge and the Robertsbridge (River Rother) Flood Alleviation Scheme:

   The scheme was completed in 2004 and is designed to provide protection against the 1 in 100 year extreme event. Allowances for climate change were not built into the scheme but a fairly generous freeboard (300mm) was incorporated into the design. Robertsbridge and in particular Rutley Close and Northbridge Street, had a history of fluvial flooding. In the floods of Autumn 2000 some 100 properties were flooded at Robertsbridge. Since completion of the Flood Alleviation Scheme there is no record of properties having been flooded at Robertsbridge. The flood event in January 2008 was unusual (possibly a 1 in 5 or 1 in 10 year event), but nowhere near the level of the floods of Autumn 2000.

   The draft CFMP policy for Robertsbridge is 'To continue with existing or alternative actions to manage flood risk' (accepting that flood risk will increase over time from this baseline).

2. Etchingham:

   There are no proposed flood alleviation schemes for Etchingham. The flooding experienced in Etchingham during Autumn 2000 was less extensive than that at Robertsbridge. However, several (16) properties were inundated, including the railway station.

   The draft CFMP policy for Etchingham is 'To continue with existing or alternative actions to manage flood risk (accepting that flood risk will increase over time from this baseline..'

3. Chick Hill, Pett Level:

   Has a history of flooding, but no scheme is proposed. Some 4 properties at the foot of Chick Hill are susceptible to fluvial flooding.

   The draft CFMP policy for Chick Hill, Pett Level is 'To take action to increase the frequency of flooding to deliver benefits locally or elsewhere (which may mean an overall reduction in flood risk, e.g., for habitat inundation).'

4. Sedlescombe:

Has a history of flooding, but no scheme is proposed. Some 2 properties are susceptible to fluvial flooding.

The draft CFMP policy for Sedlescombe is 'To take action to increase the frequency of flooding to deliver benefits locally or elsewhere (which may mean an overall reduction in flood risk, e.g., for habitat inundation).'

5. Bodiam:

Has a history of flooding, but no scheme is proposed. There is no data on the number of properties affected.

The draft CFMP policy for Bodiam is 'To take action to increase the frequency of flooding to deliver benefits locally or elsewhere (which may mean an overall reduction in flood risk, e.g., for habitat inundation).'

6. Rye:

Some fluvial flooding occurs in the vicinity of Rye, which is the confluence of the Rivers Rother, Brede and Tillingham. There are no fluvial flood alleviation schemes proposed for Rye at present. It should be noted however that the Environment Agency proposes at some time in the future, to undertake modelling of the Tillingham Valley. This will identify the fluvial functional floodplain and the extent of flooding in the event of the 1 in 100 year extreme event.

The draft CFMP policy for Rye is 'To take further action to sustain the current scale of flood risk into the future (responding to the potential increases in flood risk from urban development, land use change and climate change).'

7. Winchelsea:

Some fluvial flooding occurs in the vicinity of Winchelsea, which lies on the River Brede. There are no fluvial flood alleviation schemes proposed for Winchelsea.

The draft CFMP policy for Winchelsea is 'To take action to increase the frequency of flooding to deliver benefits locally or elsewhere (which may mean an overall reduction in flood risk, e.g., for habitat inundation).'

8. Crowhurst:

Some flooding of property occurs in the upper catchment of the Combe Haven at Crowhurst, where some 12 properties flooded in February 2001. There are no proposals for a fluvial flood alleviation scheme.

The CFMP policy for Crowhurst is ‘To take further action to sustain the current scale of flood risk into the future (responding to the potential increases in flood risk from urban development, land use change and climate change).’

9. Bexhill:

Some flooding occurs at Cooden Beach (Clavering Walk and Cooden Sea Road). Some 15 properties are within the Flood Risk Zone. Some flooding also occurs on the eastern side of Pebsham (Kent Close, Hurstwood Close, Martyns Way) – some 6 properties are within the Flood Risk Zone.

The CFMP policy for Bexhill is ‘To take further action to sustain the current scale of flood risk into the future (responding to the potential increases in flood risk from urban development, land use change and climate change) .’

10. Normans Bay:

Some fluvial flooding occurs in the vicinity of Normans Bay, which lies where the Wallers Haven enters the sea. There are no fluvial flood alleviation schemes proposed for Normans Bay.

The CFMP policy for Normans Bay is ‘To take further action to sustain the current scale of flood risk into the future (responding to the potential increases in flood risk from urban development, land use change and climate change).’

Summary of main non-coastal historic flood events in Rother and Romney CFMP area.

The main sources of flooding are fluvial flooding along the Rother (Robertsbridge and Etchingham), a combination of fluvial and tidal flooding in the lower catchment and in the Marshes and tidal flooding along the coast.

The flood generation mechanism within the Rother and Romney CFMP area varies in relation to both the watercourse and the location within the catchment. Historically the area has been vulnerable to flooding, with less permeable rocks and soil resulting in rapid run off which discharges to the flat marshland, where outfalls to the sea are frequently tide-locked. The river below Bodiam was managed as a flood retention lake, but in November 1960 an exceptional flood inundated the whole valley and the Rother Drainage Improvement Scheme (RADIS) was implemented between 1966 and 1980 which involved raising river banks and the installation of 36 additional pumps to drain the marsh area.

Significant flooding problems are associated with the urban areas of Robertsbridge and Etchingham. Robertsbridge has suffered ever increasing flooding since 1946. During the flood events of Autumn/Winter 2000, Robertsbridge was one of the worst affected towns in East Sussex, and major flooding was also experienced at Etchingham. As a result of this a flood alleviation scheme was constructed at Robertsbridge in 2004 with a standard

of protection of 40 properties against a 1 % probability fluvial event (1 in 100 year extreme event).

In the lower Rother catchment there are several minor tributaries and drains that can cause isolated flood incidents. They seem to be particularly susceptible to flooding from high intensity localised storms, especially where an appropriate level of maintenance is not ensured and drainage channels are not kept clear.

Being mostly below the level of the spring tide, the Romney and Walland Marshes are prone to both fluvial and tidal flooding and the protection of this area depends on constant and continuing maintenance of both the land drainage system and the sea defences. Water levels in the Romney and Walland Marshes are managed by the Romney Marshes Area Internal Drainage Board. The Royal Military Canal has a large part to play in the water management. On its construction in 1809 its purpose was to act as a defence against Napoleon and be a major drainage system for the winter, and a reservoir for the summer and would greatly improve conditions on the Marsh.

Rye, has also experienced some flooding during high tides and storm conditions. Tidal defences have been developed aiming to reduce the occurrence of storm surges overtopping the defences. This CFMP will not consider the risk of tidal flooding (this is covered by the South Foreland to Beachy Head Shoreline Management Plan), but will consider the flood risk from tide-locking. Table 3.1 provides a summary of historic non-tidal flood events within the Rother and Romney CFMP area.

The very wet period of Autumn/Winter 2000/01 resulted in flooding in much of the Rother and Romney area. Four properties were flooded in Chick Hill in February 2001 as a result of runoff from Pett and Fairlight overtopping the Marsham Sewer.

Summary table of main non-coastal historic flood events in Rother and Romney CFMP area

Location	Watercourse	Historic Flooding	Main sources of flooding	Main causes of flooding	No of properties affected
Robertsbridge	Rother and Darwell	1946. 1960, 1979, 1985, 1999, 2001	Fluvial	Insufficient storage capacity, too elevated for tide-locking. Very intense rainfall on an already wet soil leading to rapid runoff. Recent development in the floodplains, debris in the river channel	No data available
		1993	Fluvial, properties flooded by sewage contaminated water	Intense rainfall	8
		12th October 2000 (greater than 1% event) 31st October 2000 5th November 2000	Fluvial, backing up from road drains and surcharging of combined sewerage system (indirect source), backing up behind culverts and bridges, blockages caused by watercourse debris, overtopping of low flood embankment, back up of floodwater from the floodplains, reduced storage capacity due to repeat events	Very intense rainfall on an already wet soil leading to rapid runoff. Recent development in the floodplains, debris in the river channel	88 (12th October) 31 (31st October) 33 (5th November)

Location	Watercourse	Historic Flooding	Main sources of flooding	Main causes of flooding	No of properties affected
Etchingham	Rother/Dudwell	12th October 2000	Fluvial, backing up from road drains and surcharging of combined sewerage system (indirect source), backing up behind culverts and bridges, blockages caused by watercourse debris, overtopping of low flood embankment, back up of floodwater from the floodplains	Very intense rainfall on an already wet soil leading to rapid runoff and fluvial flooding	16 including the Railway Station
Lower Rother Valley	Rother	1960	Fluvial, river out of bank	Intense rainfall, river tide-locked, exceeded flood retention capacity	No data available
Rother Levels	Rother	1993	Fluvial, overtopping from Rother, upstream and downstream of the junction of Kent Ditch	Intense rainfall	None
Romney and Walland Marsh	Rother RMC private ditches	1960 25th December 1999 Autumn 2000	Fluvial, river out of bank Fluvial, river out of bank Runoff from surrounding agricultural fields Fluvial	Very intense rainfall, tide-locking, insufficient drainage capacity Intense and long duration rainfall Waterlogged soil combined with high tides, insufficient drainage, but not until early 2001	No data available No data available No data available

Location	Watercourse	Historic Flooding	Main sources of flooding	Main causes of flooding	No of properties affected
Tillingham	Tillingham	Autumn 2000	High runoff combined with tide-locking	Intense rainfall leading to fluvial flooding combined with tide-locking	Very few
Brede	Brede	Autumn 2000	High runoff combined with tide-locking	Intense rainfall leading to fluvial flooding combined with tide-locking	Very few
Cliff End, Chick Hill	Marsham Sewer	February 2001	Fluvial-flooded Pett Level low lying properties at the bottom of Chick Hill	Poor drainage capacity, debris in the channel	3 - 4
Westfield	Private stream/ ditches	No data available	Culverts blocked, highway flooded	Heavy rain. Poor surface drainage system	No data available
Battle	Brede	No data available	Fluvial, flooding occurs as a wide stream of water crossing the road. Flooding occurs along Marley Lane, Battle, near Marley House.	Water subsides when heavy rain ceases.	No data available
Peasmarsh	Private ditches	January 1995	Fluvial	Poor channel maintenance	No data available
Sedlescombe	Brede (not main section)	No data available	Fluvial	Poor channel maintenance	2

Summary of main non-coastal historic flood events in Cuckmere and Sussex Havens area

The watercourses in the study area have been modified over several hundred years. The Pevensey Levels area was reclaimed from saltmarsh from the early Middle Ages (more than 800 years ago). A drainage programme was carried out including installation of weirs, sluices, pumps and other control equipment during the 1960s and 1970s. Records of flooding on the Pevensey levels date back to 1836, when they were reported flooded along with much of other low lying land in Sussex.

Event Date	Details
November 1973	Road and property and garden flooding noted in Crowhurst.
November 1974	Many gardens and low-lying land flooded throughout the catchment. 3 – 4 acres of caravan park flooded. Flooding of several properties and roads in Bexhill (14 properties).
December 1984	Fluvial flooding recorded over the catchment following very heavy rainfall causing high water levels and overtopping of watercourses in places. Properties and roads were flooded in Bexhill and Crowhurst.
February 2001	12 properties were flooded in Crowhurst.
June 2003	Heavy rainfall caused flooding of properties and roads in Bexhill

3.3 SURFACE WATER DRAINAGE FLOODING

3.3.1 Some built up parts of Rother are susceptible to flooding caused by poor surface water drainage. This may be caused by a high water table. High tides and high river levels can influence the height of the water tables.

3.3.2 Known areas that suffer from poor surface water drainage include:

- Winchelsea Beach (Donald Way, Victoria Way area)
- Parts of Camber
- Parts of Normans Bay
- Parts of Rye
- Parts of Pett Level
- Parts of Robertsbridge

3.3.3 These areas are mainly situated on the Levels that were marshy ground until drainage ditches were dug to drain them.

3.3.4 These areas are shown in Appendix 4 – Problem Drainage Areas in Rother District.

3.4 HIGHWAY FLOODING

3.4.1 There are no formal records of highway flooding, though one is due to be produced for regular flood spots. Records are kept of all culverts in excess of 1 metre in diameter. One problem is that often it is now known where drainage goes. Problems are mainly caused by bad jointing, alignment etc., or storm water getting into a foul sewerage system.

3.4.2 Plans are being made for improvements and eventually all the problem spots will be improved.

3.4.3 The Highway Authority's Divisional Engineer has provided a schedule of the locations most prone to highway flooding in Rother District together with a schedule of Highway Flood Alleviation Schemes that are due for consideration. These are shown at Appendix 8. (A map showing these locations is shown in Appendix 10.).

3.5 SEWERAGE FLOODING

3.5.1 The Southern Water Sewerage Strategy Manager stated, on 28th November 2007:-

"Whilst not wishing to underestimate the seriousness of sewer flooding for each of the householders these are relatively low level incidents, affecting only a few properties at each location.

Many of these locations either have been, or will be the subject of flood alleviation schemes, depending on availability of funding, as determined by Ofwat.

I do not therefore believe that these incidents truly represent a view of strategic flood risk, which would require a very significant amount of analysis for extreme storms (1:100 year for example), above the design target for water company flood prevention. This type of analysis would require not only sewer hydraulic modelling to determine sources of flooding, but also overland flow modelling to determine flood pathways and properties/areas actually at risk.

This type of analysis would give an indication of flood risk which is unlikely to be resolved (as uneconomic) and hence would remain as a risk at a strategic level."

3.5.2 A schedule of the sewerage flooding incidents that have occurred in Rother District over the past ten years is shown at Appendix 6. (A map showing these locations is shown in Appendix 11).

3.6 RESERVOIRS

3.6.1 There are 3 major reservoirs within Rother District that are used for public water supply. They are owned and operated by Southern Water. Each reservoir is constructed by damming a valley.

- Bewl Water: The largest of the three reservoirs. It is substantially within Rother District. It was constructed in the 1970s. Plans to enlarge it in the future are being considered.

- Darwell Reservoir: Constructed in the 1930s. Capacity – 4728ML. There have been plans to enlarge it, but these are believed to be on hold.

- Powdermill Reservoir: Believed to have been constructed in the 1930s. Capacity – 865ML.

SECTION 4

Recommendation for Level 2 SFRA and Interim draft Policy Guidance for development in different flood zones.

SECTION 4

LEVEL 2 SFRA

4.1 It is anticipated that the Level 2 SFRA will be applied to the following areas, although this is constantly under review as the Level 1 SFRA reaches completion, verification and signing off stages.

- Camber - existing development boundary wholly in FRA
- Rye Harbour - existing development boundary wholly in FRA
- Winchelsea Beach - existing development boundary wholly in FRA
- Pett Level and Marsham Flatlands - existing development boundary wholly in FRA
- Normans Bay - existing development boundary partially in FRA
- Rye (Dry Island) - existing development boundary partially in FRA
- Winchelsea (Dry Island) - existing development boundary partially in FRA
- Robertsbridge & Northbridge Street - existing development boundary partially in FRA
- Etchingham - existing development boundary partially in FRA
- Crowhurst - existing development boundary partially in FRA
- Bodiam - village in countryside partially in FRA
- Jurys Gap - settlement in countryside but wholly in FRA
- East Guldeford - settlement in countryside but wholly in FRA

4.2 It is anticipated that a Level 2 SFRA will not be required for Bexhill as it proposed that the strategic growth area (and any other proposed development) will avoid flood Zones 2 and 3. However some infrastructure, and in particular roads such as the A259(T) main south coast road, by necessity, runs through a flood risk area.

4.3 Within the existing developed parts of Bexhill there are a few small areas that lie within a Flood Risk Area. It is not anticipated that a Level 2 SFRA will be required for those areas. Within these areas planning permission would not normally be granted for development (other than for minor development), unless the application was accompanied by a favourable Flood Risk Assessment and the development successfully passes the Exception Test. This would apply to the following known areas:

- Martyns Way/Singleton Walk/Kent Close/Gloucester Avenue
- Westcourt Drive
- Frant Avenue/Spring Lane
- Cooden Sea Road (adj. Golf Course)
- Reginal Road
- The Byway/Ocklynge Close
- Watermill Lane (outside Development Boundary)
- Sackville Road
- Little Common Road (adj. Athletic club)
- Wainwright Road
- Downlands Avenue
- Seabourne Road
- Land within 10m of Picknill Green Stream
- Land within 10m of Egerton Park Stream
- Land in vicinity of Egerton Park Stream, as shown on EA Map

4.4 Within villages where only a small portion of the existing developed area is within a Flood Risk Area it is not anticipated that a Level 2 SFRA will be required. Planning permission would not normally be granted for development unless the application was accompanied by a favourable Flood Risk Assessment and the development successfully passes the Exception Test. This applies to small parts of the following villages:

- Sedlescombe
- Three Oaks (Guestling)
- Northiam Station area

4.5 It is not anticipated that a Level 2 SFRA will be required for Fairlight Cove. Fairlight Cove is susceptible to cliff erosion caused in part by unstable land which in turn is caused in part by excessive surface water run-off and in part by its geology. Land at Sea Road and Rockmead Road now benefits from sea defence schemes. Land at Channel Way is not currently susceptible to cliff erosion or instability. However the situation will need to be reviewed periodically.

Interim Policy Guidance for development according to different Flood Zones

4.6 The Sequential Test and Exception Test, as set out in Annex D of PPS25 will be followed.

4.7 Where areas within Zone 3a (High Probability) have been provided with defences that give protection from the 1 in 200 year extreme tidal event or the 1 in 100 year extreme fluvial event, proposals for development will be given higher priority than undefended sites within Zone 3a, but would remain a lower priority than sites within Zone 2.

4.8 Development in those areas not a subject of the Level 2 SFRA will also be required to pass the Sequential Test. Due to the relatively small area located in the floodplain and the limited potential for further development in these areas, the Sequential Test will be based on the Environment Agency's flood zones. All relevant proposals within the flood risk area will be subject of the Exception Test.

APPENDIX 1

Map showing Rother District with Flood Zone 2 (2007)

APPENDIX 2

CONTENTS OF APPENDICES FOR SFRA (Nov 2007)

All the SFRA map files are in PDF format.

Appendix 2 - (Flood Zones Overlays GIS)

Flood Zone 2 (2007)

1. Bodiam
2. Camber
3. Cooden Beach
4. Crowhurst
5. Etchingham
6. Fairlight Cove
7. Harbour Road – Rye
8. Jurys Gap
9. Normans Way
10. Pebsham – Glyne Gap
11. Pett Level
12. Robertsbridge
13. Rye Harbour
14. Rye
15. Sedlescombe
16. Three Oaks
17. Watermill
18. Winchelsea & Winchelsea Beach

Flood Zone 3 (2007)

1. Bodiam
2. Camber
3. Cooden Beach
4. Crowhurst
5. Etchingham
6. Fairlight Cove
7. Harbour Road – Rye
8. Jurys Gap
9. Normans Way
10. Pebsham – Glyne Gap
11. Pett Level
12. Robertsbridge
13. Rye Harbour
14. Rye
15. Sedlescombe
16. Three Oaks
17. Watermill
18. Winchelsea & Winchelsea Beach

APPENDIX 3

(South Foreland to Beachy Head Shoreline Management Plan)

1. pu4c14 - Lydd Ranges
2. pu4c15 - Jury's Gap to The Suttons
3. pu4c16 - Camber Sands
4. pu4c17 - River Rother
5. pu4c18 - River Rother to Cliff End (Part 1 of 2)
6. pu4c18 - River Rother to Cliff End (Part 2 of 2)
7. pu4c19 - Cliff End to Fairlight Cove
8. pu4c20 - Fairlight Cove East
9. pu4c21 - Fairlight Cove Central
10. pu4c22 - Fairlight Cove West
11. pu4c23 - Fairlight Cove West to Hastings (Part 1 of 2)
12. pu4c26 - Bexhill and Cooden (Part 1 of 2)
13. pu4c26 - Bexhill and Cooden (Part 2 of 2)
14. pu4c27 - Pevensey and Hooe Levels (Part 1 of 2)

APPENDIX 4

Map showing Problem Drainage Areas in Rother

APPENDIX 5

Key Maps showing:

EA Flood Zone 2 (2007)
EA Flood Zone 3 (2007)
EA Flood Map Historic (2006)
EA Flood Defences Benefit Areas (2007)
EA Flood Defences (2007)
EA Banktop E Planning
EA Main Rivers Map
SW Sewer Inverts
SW Sewer Lines
SW Sewer Points

APPENDIX 6

Sewerage Flooding Incidents (Southern Water) over the past 10 years

APPENDIX 7

Local Plan Policies that will need to be reconsidered in the light of the SFRA

Appendix 7

Local Plan Policies that will need to be re-considered in the light of the SFRA

DS1	(v)	Infrastructure
	(vi)	Undeveloped coastline
	(xi)	Development safe from flooding
	(xiii)	Avoiding unstable land
GD1	(ix)	Infrastructure
	(x)	Drainage and Water Quality
	(xv)	Flood Risk – minimise and manage
GD2		Infrastructure
EM5		Industry/storage (DB Earthmoving) – not in flood risk area
EM7		New or extended tourist attractions/facilities
EM8		Bodiam/Robertsbridge railway – not compromise flood plain
EM9		Tourist accommodation – in accordance with other policies (development boundaries)
EM10		Caravans/Chalets/Tents – not in high risk flood area
EM11		Occupancy of Caravans/Chalets/Tents – Seasonal flood risk
RY3		Rock Channel (subject of current SPD)
RY4		Thomas Peacocke Lower School
RY5		Land north of Udimore Road (small part)
RY6		Rye Town Centre (Dry Island)
RY7		Harbour Road Employment Area
RY8		Adjacent Stonework Cottages, Rye Harbour
DS3		Development Boundaries

- The development boundaries of Norman's Bay, Pett Level, Winchelsea Beach, Rye Harbour and Camber are wholly or almost wholly within a Flood Risk Area
- The Citadel or historic core areas of both Rye and Winchelsea are "Dry Islands", with surrounding development in a Flood Risk area (and access to the 'Dry Island')
- Parts of Bexhill, Crowhurst, Etchingham, Bodiam, Robertsbridge, Three Oaks and Sedlescombe, that are within the development boundary are also within a Flood Risk Area.
- Parts of Fairlight Cove that are within the development boundary are also susceptible to cliff erosion and landslip
- Parts of Battle, Rye and Stonegate that are within the development boundary are also within a Groundwater Source Protection Zone

APPENDIX 8

Schedule of the locations most prone to Highway Flooding in Rother

Appendix 8

HIGHWAY FLOODING

(i) Highway Flooding Hotspots in Rother District (ESCC)

1. Military Road Rye opposite number 89
2. Powder Mill Lane Battle 300 meters from the junction with the A2100
3. Powder Mill Lane Battle at the bottom of Richards Hill
4. B2204 Pay Gate bends
5. B2204 between Skinners Lane/the shop
6. Peter James Lane Fairlight
7. Rosemary Lane Fairlight
8. Float Lane Udimore
9. Furnace Lane Broad Oak
10. Herbrand Walk between the Star and railway
11. Cooden by the station under the railway bridge
12. West Court Avenue under the railway bridge
13. Sutherland Avenue in dip 100 yards from A259
14. Pear Tree Lane 100m in from the A269
15. A269 just north of Peartree Lane junction
16. A268 junction/Stoddards Lane
17. A268 Northiam near the 4 wheel drive center
18. North Trade Road Battle near Fredrick Thatcher place
19. North Trade Road junction with Wellington Gardens
20. Ewhurst Lane outside Rope Walk
21. Rope Walk, Rye
22. Old Lydd Road, Camber
23. Pett Level along the sea wall and towards Pett
24. Upper Wilting, Crowhurst
25. A2100 Crowhurst turning
26. A2100 Telham opposite the Church
27. B2096 Woods Corner/junction C18
28. B2096 Giffords Farm area
29. B2096 bottom of Carricks Hill
30. Robertsbridge in general

31. Bodiam between the Castle and railway

32. A28 Near Kent Boundary

33. B2089 300 yards south of Cripps Corner cross roads

34. Ridgewood Gardens, Bexhill

35. Moat lane Sedlescombe/junction Bluemans Lane

36. Rock Lane just below railway bridge and by Coghurst Farm

37. Woodsgate Park, Bexhill

38. Slip road off the A28 Westfield Lane

39. A269 junction/B2044

40. Netherfield Road, Battle 200 yards down from the A2100

41. A265 Heathfield Road, Burwash. Between Little Park Farm Road and'Whitegates' - Low spot and capacity problem.

42. B2099 Ticehurst High Street. Between Dale Hill and Junction with Springfields - Very flat - connections across road join on 'y' couplings - also capacity problems.

43. A229 Kings Hill. Between Merriments Lane and Kent Boundary. Gullies drop out onto embankment which is being eroded.

44. A265 and Church Lane, Etchingham Village. Area surrounding railway station, factories and cottages - river valley.

45. U6199 Batemans Lane, Burwash. Area around Dudwell Farm to Junction with Kings Hill - river valley

46. C214 Witherenden Road, Stonegate. Area surrounding Witherenden Bridge -River Valley

47. A265 Judens Flats, Burwash. In area of Lower Rough Farm – large volumes of water spill onto highway from surrounding fields and farms via the track adjacent to Green Farm - Gulley run is on opposite side of the road.

48. A265 Judens Flat, Burwash Weald – Water discharging from access of Green Farm onto and across the carriageway.

49. A265 Haremere Hill, Etchingham – Water travelling down the hill from Hurst Green is missing the existing gullies (located in margins), crosses the road in several locations, and collects in the road at the bottom of the hill

50. U6187 Tinkers Lane, Flimwell – Visited site recently. Problem with large volume of water discharging onto road from adjacent field. Minimal drainage present – requires upgrading. Existing backfall towards Coronation Cottages – kerbs required?

(ii) **Highway Flood Alleviation Schemes** (**ESCC**)

Larger schemes for consideration:

1. Pannel Lane Pett (the general condition of the road)
2. Lunsford Farm, Pett retaining structure (the kerbs and concrete are on the move)
3. Hobbs Lane, Beckley requires some sort of surface
4. B2089 Udimore opposite Church Lane lack of drainage
5. U C section of High Street, Winchelsea Kerbs and blocks
6. German Street, Winchelsea footway
7. Footpaths in Rye!!!
8. B2089 from the new work at the top of Darwell Hill to Woods Corner Drainage and surface possible kerbs at a few locations
9. C18 Woods Corner to A271 heavy patching
10. B2244 Sedlescombe village surface the hot rolled is giving up
11. B2244 Sedlescombe along side the Brickwall Hotel drainage [full of roots]
12. B2082 Iden heavy patching /surfacing
13. Fairlight Road near the Country Park kerbs and surface [Boards are out]
14. B2089 Ferry Road Rye surface is badly rutted
15. B2089 just north of Popping Hole Lane surface badly rutted
16. Barrack Road Bexhill surface [lots of depressions]
17. A268 Whitebread Lane [Heavy patching]
18. Fairlight, Shepherds Way drainage
19. C19 The stage/junction road ends no drainage system.
20. Upper Wilting, Crowhurst [Drainage]
21. Peter James Lane Battery Hill end pipes to ditch as it is so close to the road
22. Ludley Hill as above

APPENDIX 9

Emergency Planning Officer's proposed 5 Community Flood Warning Areas for Rother District

Appendix 9

Emergency Planning Officer's proposed
5 Community Flood Warning Areas for Rother District

Community flood warning areas

Our flood warning areas currently represent large geographical areas and because of their size flooding can occur in one part of the flood warning area whilst other areas are not affected. This can lead to customers potentially becoming complacent and not taking action at the appropriate time.

We want to build trust with our customers and further their understanding of our flood warning service. To achieve this we plan to produce flood warning areas that are community based so we can offer a more reliable, personal and focused service.

In order to provide a community warning area we must have the data and knowledge from past flood events and have the telemetry and forecasting capability to provide the community with a reliable warning.

This is a new concept for flood warnings in Kent area, we recognise obstacles and technical challenges and implementation of the community warning areas will take time. We are changing some flood warning areas into community areas by August this year and the rest of Kent area by August next year.

We are planning to change all of the five flood warning areas in your area this year:

073FWC10 : The Tidal Rother including Rye and Rye Harbour
073FWC9 : Coast from Fairlight to Dungeness
073FWF5A1 : River Rother between Mayfield and Newenden
073FWF5A2 : River Brede between Sedlescombe and Rye
073FWF5A3 : River Tillingham between Beckley Furnace and Rye

073FWC10, The Tidal Rother including Rye and Rye Harbour

We are proposing to split this flood warning area into two communities

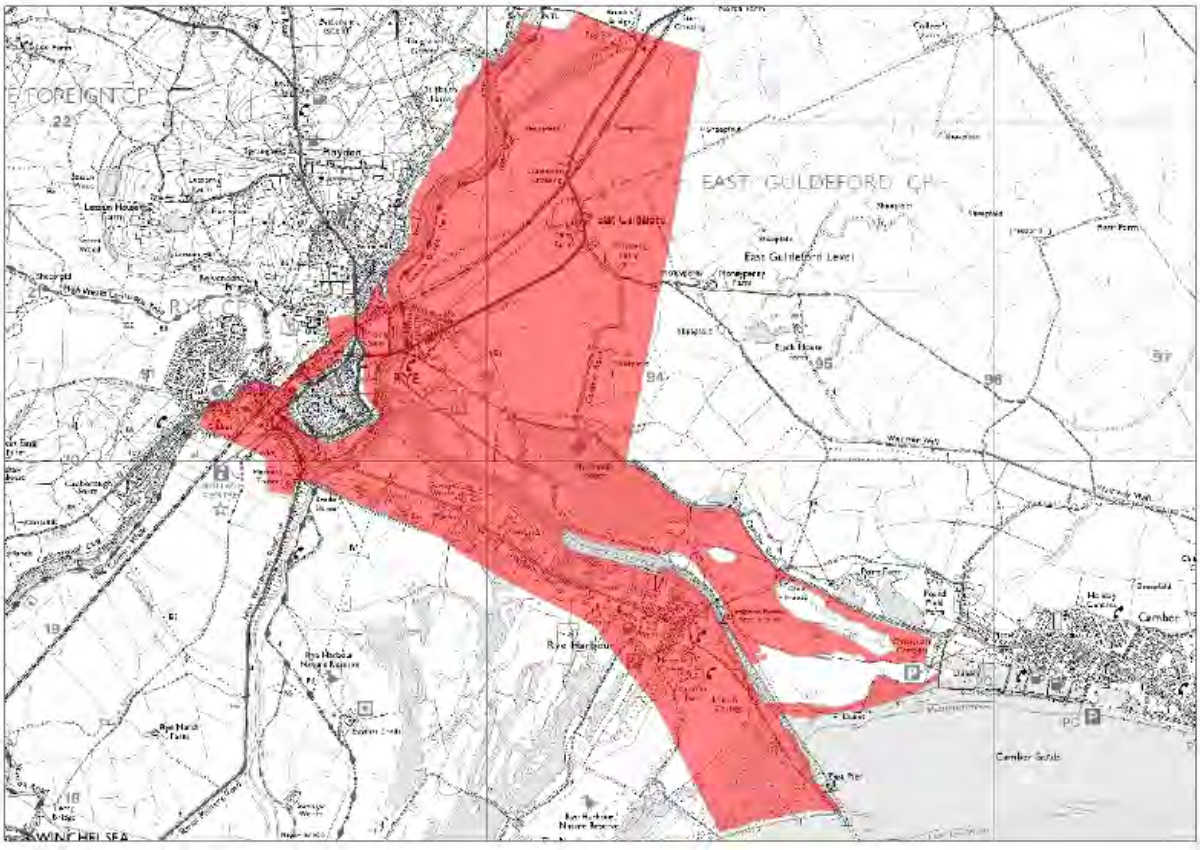
1) King's Avenue Estate and Rock Channel riverside properties
2) Rye Town, Rye Harbour and East Guldeford

These communities have been split due to the recent flood defence improvements in Rye. The increased defence in Rye protects the whole town to a 1/1000 level apart from some Rock Channel properties and King's Avenue Estate (King's Avenue and New Road triangle). This community warning area is at higher risk and a flood warning will be issued at a lower threshold.

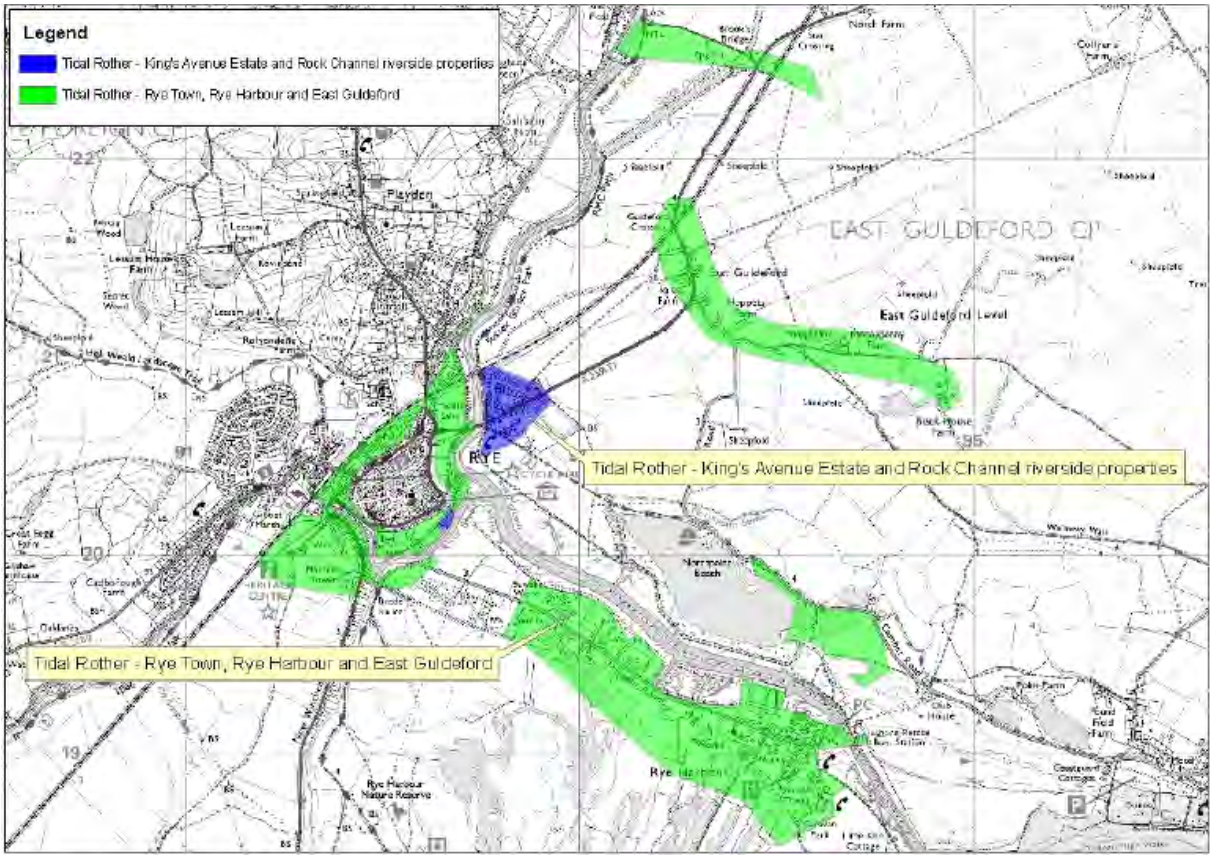
There are two other communities that are at risk from the Tidal Rother but the fluvial risk is more dominant so these are included in the Tillingham and Brede community changes that are explained later.

The following two maps show the changes we are proposing:

Map 1: The current flood warning area



Map 2: The proposed community flood warning areas



073FWC9, Coast from Fairlight to Dungeness

We are proposing to change the C9 warning area to the South of Rye and create one new community warning area

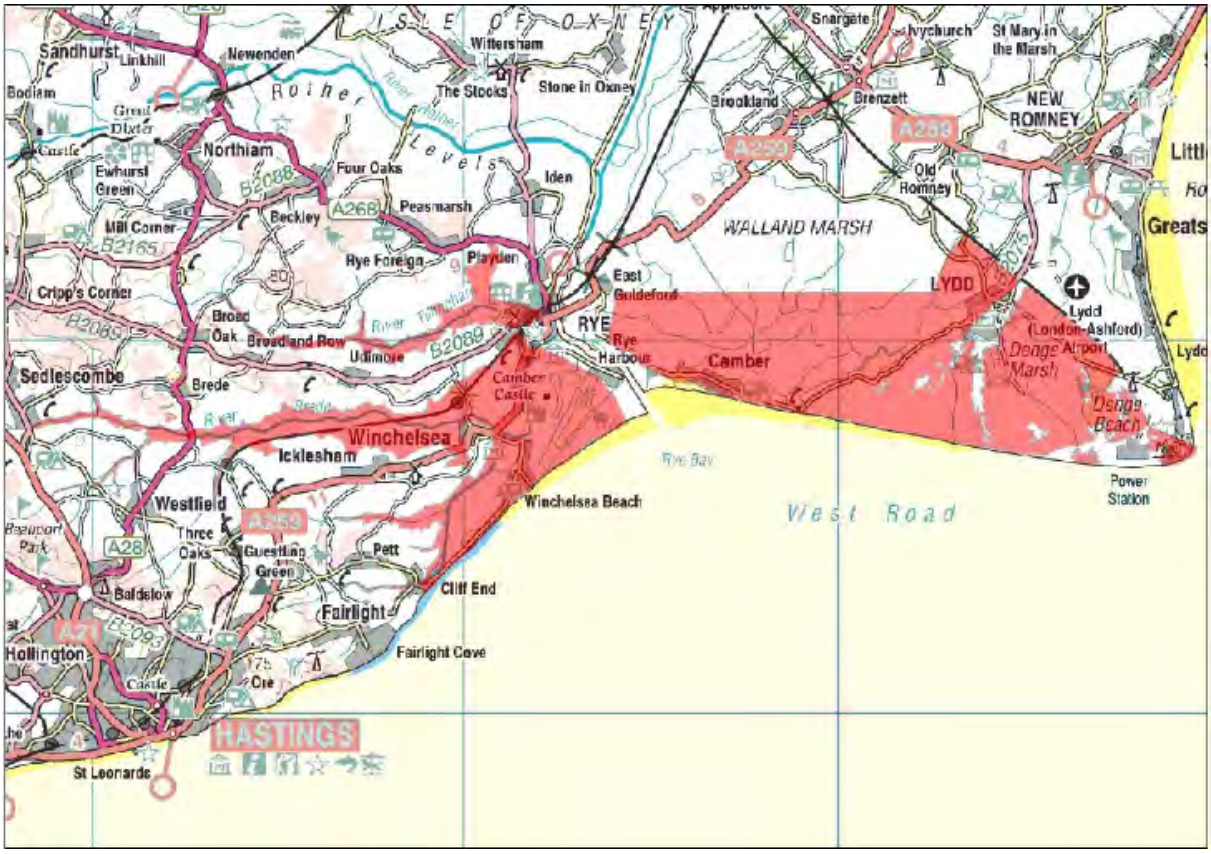
1) Winchelsea Beach and Pett Level

The Winchelsea community area is also affected by the coast but is fluvially dominant so is included in the Brede community area changes.

The rest of C9 to the East of Rye will remain the same.

The following two maps show the changes we are proposing:

Map 3: The current flood warning area



073FWF5A1, The River Rother from Mayfield to Newenden

We are proposing to split this flood warning area into two communities

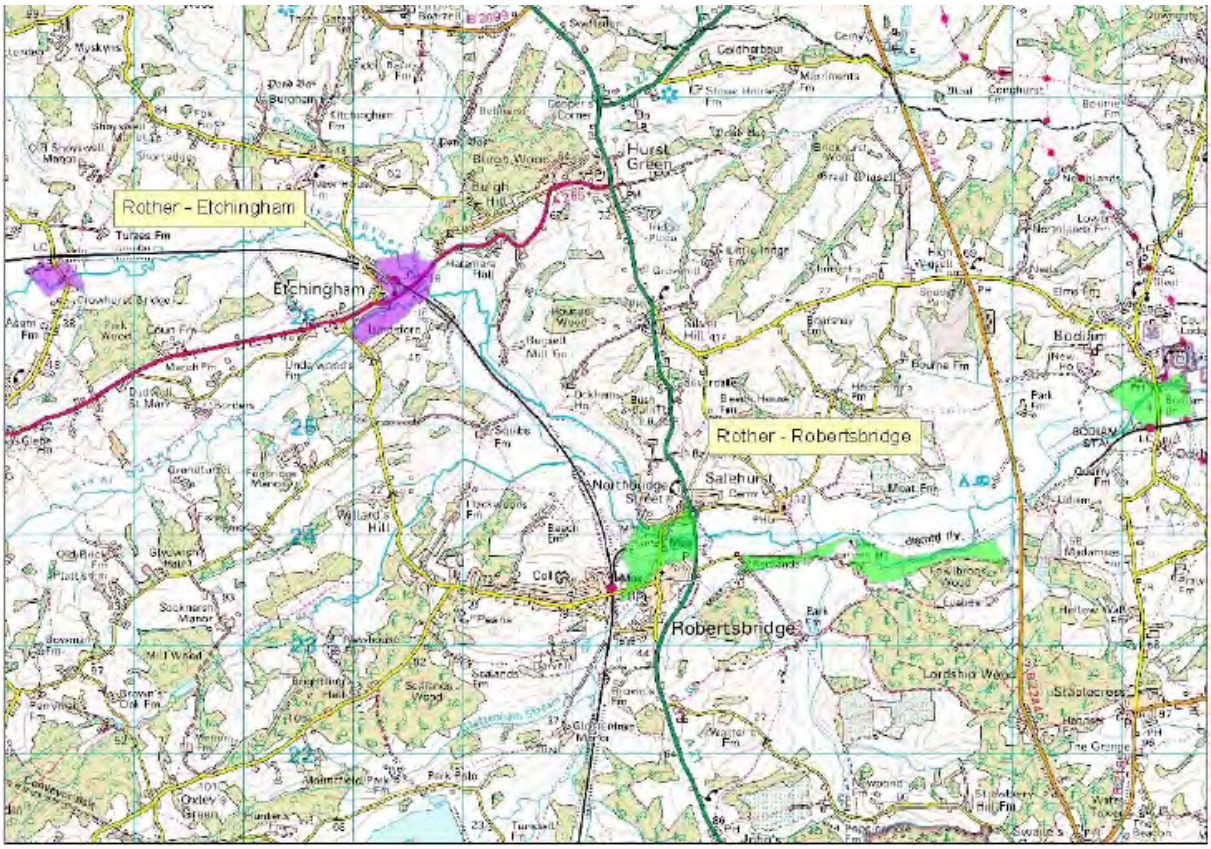
1) Etchingham
2) Robertsbridge

Etchingham and Robertsbridge are the two main communities on the Rother. There are some isolated properties along the river that have been linked into these two community areas. It is not feasible to provide these isolated properties with their own flood warning and we believe they are at flood risk from a similar scenario to the community.

The following two maps show the changes we are proposing:

Map 5: the current flood warning area

Map 6: the proposed community flood warning areas



073FWF5A2, River Brede between Sedlescombe and Rye

We are proposing to split this flood warning area into two communities

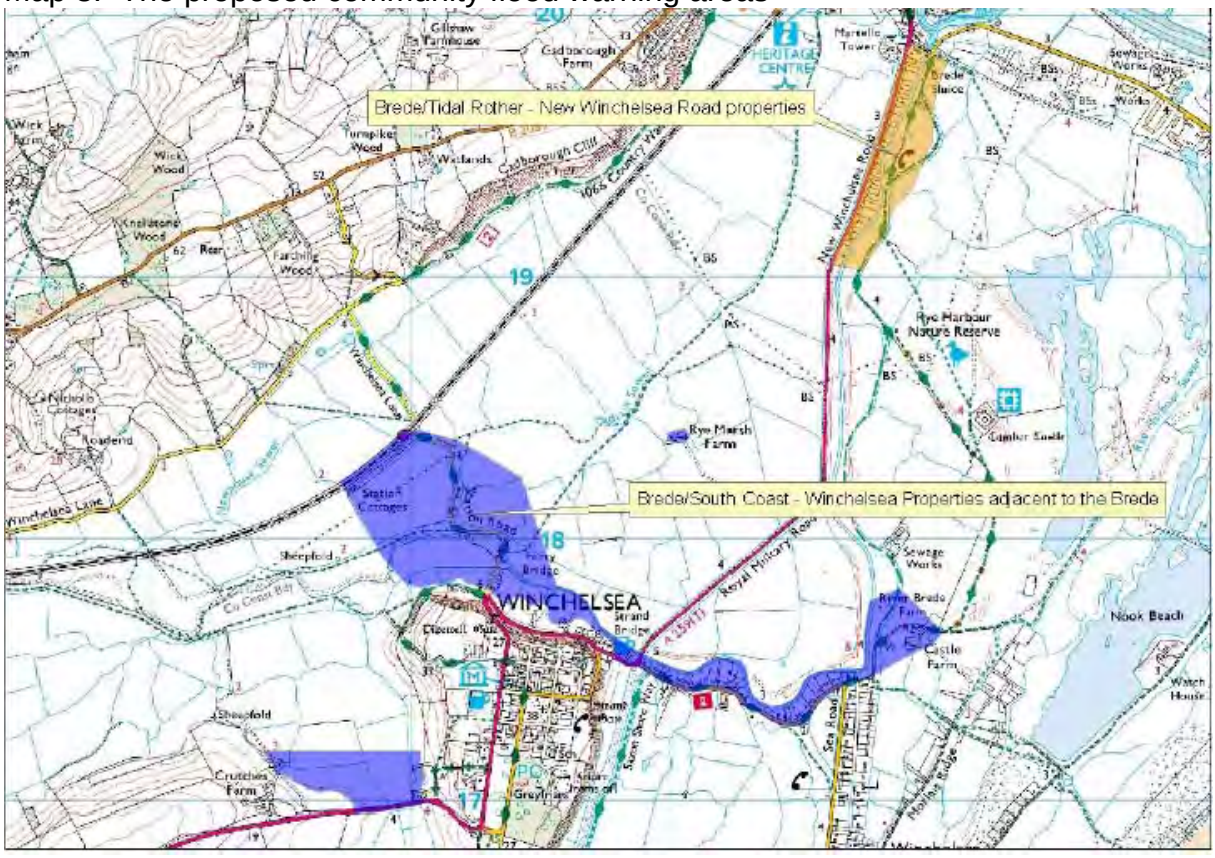
1) Winchelsea properties adjacent to the Brede
2) New Winchelsea Road properties

The 1st community will receive flood warnings for flooding from the River Brede and the Tidal Rother. The 2nd community will receive flood warnings for flooding from the River Brede and the South coast.

The following two maps show the changes we are proposing:

Map 7: The current flood warning area

Map 8: The proposed community flood warning areas



073FWF5A3, River Tillingham between Beckley Furnace and Rye

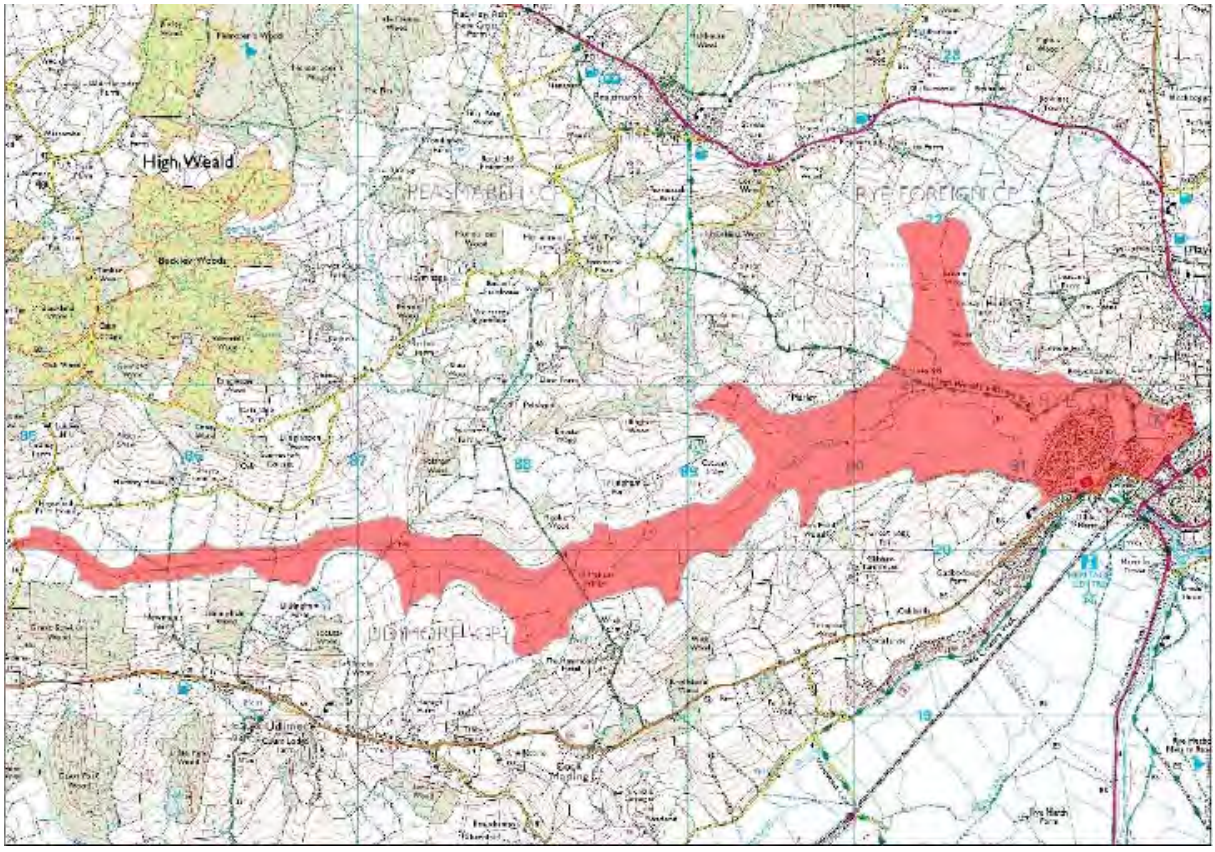
We are proposing to change this flood warning area into one community

1) Tillingham properties in Rye

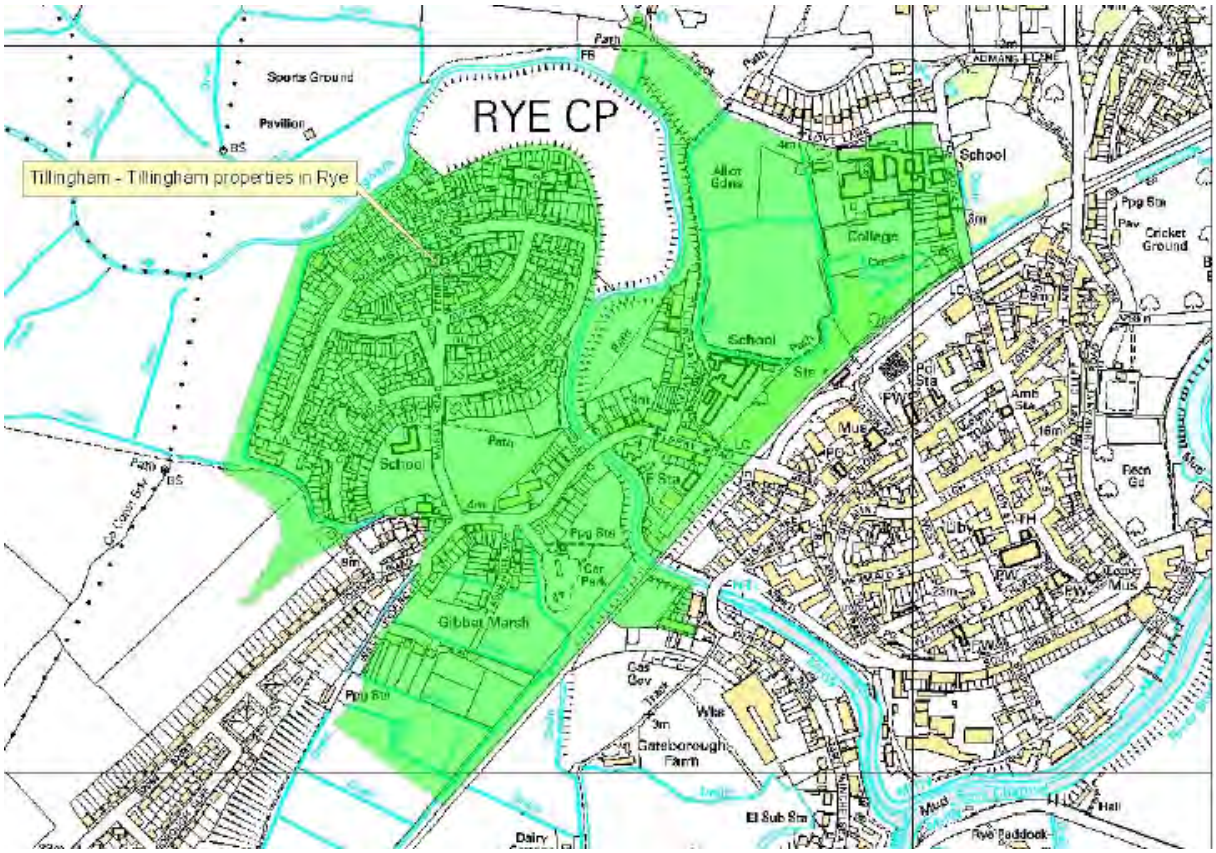
This community will receive flood warnings for flooding from the River Tillingham and the Tidal Rother.

The following two maps show the changes we are proposing:

Map 1: The current flood warning area



Map 2: The proposed community flood warning area



The community flood warning area names are very important for community identity and for people in the community to recognise and understand when they need to take appropriate action. The names are still at a draft stage and we welcome any ideas you have of more appropriate names by the 8th June.

We have grouped some communities together to avoid generating an unreasonable number of flood warning areas. This has only occurred where communities will flood from the same flooding scenario and will be warned at the same time. This is the case for Winchelsea Beach and Pett Level community area.

If you would like the GIS layer of the new flood warning areas I can send this to you. You will receive an updated flood warning area map nearer to the go live date.

What does this mean for you

• The flood warning areas 073FWC10, 073FWF5A1, 073FWF5A2, 073FWF5A3 will no longer exist from August this year (the go live date will be published nearer the time).

• The flood warning area 073FWC9 will be amended from August this year.

• You will then receive separate flood warnings for each community in each of these flood warning areas. These will have new names and codes that will be published nearer the go live date.

• Flood warning codes and meanings will remain unchanged

• Flood watches will remain unchanged

Public Awareness

We will be writing to all our existing customers explaining the changes and we are holding a trailer event in Rye for existing customers and people not registered to visit us directly.

Please take some time to have a look at the proposed new flood warning areas and how they may affect your emergency response. If you have any concerns about this change or any other issues you would like to discuss, please do not hesitate to call me. We will keep you updated with the progress of this work over the next few months.

For the Level 2 SFRA the 12 Breach Analysis locations are as follows:

1.	Normans Bay:	(Opposite entrance to static caravan park i.e., at western end of eastern nodule of development) NGR: TQ685 055
2.	Cooden Beach:	(Roundabout - southern end of Cooden Sea Road) NGR: TQ71 (Overtopping Analysis)
3.	Pett Level:	(Smugglers Inn, Pett Level Road) NGR: TQ981 134
4.	Winchelsea Beach:	(At site of Smeatons Harbour) (Also known as Harbour Field) NGR: TQ981 160
5.	Rye Harbour:	(adj. Harbour Point, Harbour Front) NGR: TQ942 192
6.	Rye:	(Garage site, on south side of The Strand) NGR: TQ918 202
7.	Rye:	(Tony Maynard's House, Rock Channel) NGR: TQ921 200
8.	Rye:	(Northern end of North Salts, by Military Road) NGR: TQ924 211
9.	Rye:	(East bank of River Rother between Monkbretton Bridge and Railway Bridge, by Kings Avenue) NGR: TQ925 207
10.	Camber:	(At Central Car Park) NGR: TQ965 185
11.	Camber:	(At eastern end of The Suttons) NGR: TQ972 184
12.	Jury’s Gap:	(Immediately to the east of Jury’s Gut Sluice) NGR: TQ988 181

APPENDIX 10

Plan showing locations most prone to Highway Flooding in Rother District

APPENDIX 11

Map showing location of sewerage flooding incidents (Southern Water) over past 10 years

APPENDIX 12

The Sequential Test

APPENDIX 12

Rother District Council – Planning Division
PPS25 Sequential Test for the Spatial Strategy in the
Rother District Council Core Strategy DPD

Introduction

1. This paper sets out the Sequential Test relating to the Spatial Strategy for Rother District contained in the Preferred Options Core Strategy. It follows the steps outlined in PPS25.

2. The Core Strategy gives broad locations for strategic development but it does not allocate specific sites. Separate sequential tests will be prepared for proposed allocated land during preparation of the Site Allocations DPD, which will also examine existing settlement development boundaries, with a view to making amendments where necessary.

Site and Development information:

Note: The Environment Agency's 'Flood Risk Zones' and 'Flood Risk Vulnerability Classifications' Tables D1, D2 and D3 in PPS25, to which these tests refer, are appended after the text, together with Figure 3.1 of the Companion Guide to PPS25, showing the application of the Sequential Test.

3. In Rother District the main flood risk is from:

- Tidal flooding in the coastal areas, e.g., at Normans Bay, Cooden, Pett Level, Winchelsea Beach, Rye Harbour, Rye and Camber

- Fluvial flooding from:

  - Wallers Haven and its tributaries (including Picknill Green Stream)
  - Egerton Park Stream
  - Combe Haven and its tributaries (including Powdermill Stream)
  - Rivers Rother, Tillingham and Brede and their tributaries
  - Pevensey Levels in the west and Walland Marsh in the east.

  N.B. The villages most susceptible to fluvial flooding are Robertsbridge, Etchingham and Crowhurst and Pett Level. It should be noted that only those parts of the villages that are within Flood Zones 2 and 3 are susceptible to flooding (fluvial).

- Groundwater flooding (water occurring below ground in natural formations – typically rocks, gravels and sands)

- Surface Water Drainage flooding. This mostly occurs in marshy or poorly drained areas, usually caused by blocked gulleys,

4. All land affected by proposed strategic locations lies outside of Flood Zones 2 and 3, except in a few cases where infrastructure (mainly roads), greenways and pedestrian/cycle routes.

5. The following summary looks at each settlement that has a Local Plan Development Boundary and analyses, together with providing a brief conclusion of the flood situation having regard to:-

   i) the function of the settlement
   ii) the potential for flooding and its severity
   iii) the current and proposed standard of the defences (both tidal and fluvial)

North Bexhill:

6. The major additional strategic allocation in Rother District is likely to be at North Bexhill.

7. It is anticipated that the allocations will all be on land in Flood Risk Zone 1 i.e. the probability of flooding is less than 1 in 1000 years.

8. However, the allocations are likely to abut the Flood Risk Zones 2 and 3 at Pevensey Marshes and the valleys of the Picknill Green Stream and Egerton Park Stream. It is therefore likely that some roads and other infrastructure will need to be situated in those areas. In addition it is anticipated that some 'greenways' including pedestrian and cycle paths will also be situated in these areas.

Normans Bay:

9. The main flood risk to Normans Bay is from tidal flooding. However, this risk is residual due to the presence of flood management measures on the shingle beaches. The recently completed sea defence works provide protection against the 1 in 400 year extreme tidal event. The Shoreline Management Plan policy is to 'hold the line' for the next 100 years.

10. The Rother District Local Plan, Inset Map No.25 shows a Development Boundary for Normans Bay (2 nodules of development). Approx 50% of the actual development lies within Flood Risk Zone 3.

11. With current day scenarios flood hazard is not significant for the majority of existing development, though it increases towards the north and the west. Approach roads would however be affected. Scenarios taking into account the predicted increase in sea levels show an increasing hazard.

12. Normans Bay has a coastal location, with some water based recreational activities. It is served by the Coastway railway.

13. It is concluded that at Normans Bay any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test and will be informed by the Level 2 SFRA. It has to be assumed that proposals for new residential development or other vulnerable uses, on 'greenfield' land and outside the existing Development Boundary are unlikely to pass the Exception Test. However, development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Cooden Beach:

14. The main flood risk to Cooden Beach is from tidal flooding, and overtopping has been known to occur in the past. The recently completed sea defence works provide protection against the 1 in 400 year extreme tidal event. The Shoreline Management Plan policy is to 'hold the line' for the next 100 years.

15. The Rother District Local Plan, Inset Map No.1, shows the Development Boundary at Cooden Beach. Only small areas within the Development Boundary lie within Flood Risk Zones 2 and 3. Most of Cooden Beach is built on higher ground, but a few houses adjacent to Cooden Sea Road are situated in an area of low flood risk hazard. They would remain in a low flood risk hazard area even allowing for predicted long term sea level rise, though parts of the Golf Course would be in a high flood risk hazard area. The easternmost properties at Clavering Walk are believed to be susceptible to fluvial flooding under extreme conditions.

16. Cooden Beach has a coastal location. It has a Golf Course and a main line railway station on the Coastway line (Eastbourne-Bexhill-Hastings). There is a 'mini-market' at the station. There is also the District's largest hotel at Cooden Beach.

17. It is concluded that at Cooden Beach, for those areas that are within Flood Zones 2 and 3, any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test and will be informed by the Level 2 SFRA. It has to be assumed that proposals within Flood Zones 2 and 3 for new residential development or other vulnerable uses, on 'greenfield' land and outside of the existing Development Boundary are unlikely to pass the Exception Test.

Pett Level:

18. Pett Level is susceptible to both tidal and fluvial flooding. The tidal flooding risk is residual due to the presence of flood management measures in the form of raised embankments and hard defences. Some 4 low lying properties at the

19. Sea defence works to bring the level of protection up to the 1 in 200 year level of protection from tidal flooding are currently taking place and are due for completion in 2010. The consultation draft Flood and Erosion Management Strategy is to sustain the sea defences for 100 years.

20. The Rother District Local Plan, Inset Map No.29, shows a Development Boundary for Pett Level, with parts of the development within Flood Zones 2 and 3.

21. With current day scenarios flood hazard is high in the Marsham Flatlands area and the more eastern properties along Pett Level Road.

22. Pett Level has a coastal location, with a slip and some water based recreational activities. Pett Level has recently lost its shop and post office, but has a public house, public conveniences, car park and a RNLI inshore lifeboat.

23. It is concluded that at Pett Level any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test and will be informed by the Level 2 SFRA. It has to be assumed that proposals for new residential development or other vulnerable uses, on 'greenfield' land and outside of the existing Development Boundary are unlikely to pass the Exception Test. However, development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Winchelsea Beach:

24. The main tidal flood risk is residual due to the presence of flood management measures in the form of raised embankments and hard defences. Parts of Winchelsea Beach suffer from poor surface water drainage.

25. Sea defence works to bring the level of protection fully up to 1 in 200 year extreme tidal event standard are currently taking place and are due for completion in 2010. The consultation draft Flood And Erosion Management Strategy is to sustain the sea defences for 100 years.

26. The Rother District Local Plan, Inset Map No.38, shows a Development Boundary for Winchelsea Beach, with almost all parts of the development within Flood Zones 2 and 3.

27. The route of the new cut (18th century – Smeaton) of the River Brede, but soon abandoned, is an area of high flood hazard. Fortunately, much of the development has taken place along the raised shingle ridges; nevertheless,

28. Winchelsea Beach has a coastal location with much tourist caravan provision and is a popular beach resort. There is a village hall, shop, post office, café, car parking and public conveniences.

29. It is concluded that at Winchelsea Beach any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test and will be informed by the Level 2 SFRA. It has to be assumed that proposals for new residential development or other vulnerable uses, on 'greenfield' land and outside of the existing Development Boundary are unlikely to pass the Exception Test. However, development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Rye Harbour and Harbour Road employment area:

30. The main flood risk to Rye Harbour is from tidal flooding from the River Rother. However, the risk is residual due to the presence of flood management measures in the form of earth embankments. These have recently been improved to provide protection against the 1 in 200 year extreme tidal event. These embankments will probably need to be raised again in 50 years time to take into account predicted sea level rise. The Shoreline Management Plan is to 'hold the line' for the next 100 years.

31. The Rother District Local Plan, Inset Map No.3, shows a Development Boundary for Rye Harbour, which also includes a housing allocation. Abutting Rye Harbour to the west is an extensive employment allocation. It is a Local Plan objective 'to maintain and enhance navigation on the River Rother and the viability of the Port of Rye as a harbour'. It is also a Local Plan objective 'to promote economic regeneration, including further job opportunities at the Harbour Road employment area'. Rye Harbour is entirely within Flood Zone 3a.

32. With current day scenarios flood hazard is not significant for the majority of existing development though it increases in the Tram Road area and Oyster Creek area. A part of the housing allocation site is shown as low Flood Risk Hazard. Scenarios taking into account the predicted increase in sea levels show an increasing hazard.

33. Rye Harbour has a riverside location, with a village hall, village shop, two public houses, public conveniences, café, sailing club, public slip, moorings and RNLI lifeboat station. It has a bus service. At Frenchmans Beach is one of the largest caravan sites in the District. At Rye Wharf is the District's only commercial wharf for sea going ships, with imports of roadstone from north Wales and exports of grain to Rotterdam and to Eire.

34. It is concluded that at Rye Harbour any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test and will be informed by the Level 2 SFRA. It has to be assumed that proposals for new residential development or other vulnerable uses, on 'greenfield' land and outside the existing Development Boundary are unlikely to pass the Exception Test. However, development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Rye (west of the River Rother):

35. This is the major part of Rye. Rye is a small market town with a population of some 5000. It has the normal services and facilities associated with a town of this size including secondary and primary schools. It is served by the Hastings to Ashford railway and the main south coast trunk road, the A259.

36. The recently completed Rye Tidal Walls and Embankments (western bank) give protection from the 1 in 200 year extreme tidal event. The Shoreline Management Plan is to 'hold the line' for 100 years.

37. The Rother District Local Plan, Inset Maps 3 and 3A, show the Development Boundary, together with a mixed use allocation at Rock Channel and a housing allocation at the site of the former Lower Thomas Peacocke School, both of which lie in flood risk areas. Land is also allocated (now with planning permission) for residential development on land adjacent to Udimore Road, but here the residential allocation avoids Flood Zones 2 and 3.

38. Flood risk at Rye is very complex. The area can be sub-divided into various compartments. Parts are susceptible to tidal flooding, parts to fluvial flooding, parts to surface water flooding and parts to all three types. Details of fluvial flooding are not complete and the Environment Agency intend to carry out an analysis of fluvial flooding in the Tillingham valley. It also has to be borne in mind that Rye is a 'Dry Island' and therefore the historic citadel area relies on access across flood risk areas. Several parts of Rye currently are considered to be in medium or high flood hazard areas.

39. Not only is Rye a market town, it is also a port. The commercial shipping is based immediately upstream of Rye Harbour village. However the major part of the fishing fleet is based at Fishmarket adjacent to Town Salts and the recreational yachts at Rock Channel and The Strand. The harbour of Rye has functioned as a port for more than a thousand years. It is one of the original Cinque Ports. Rye is situated at the confluence of the Rivers Rother, Tillingham and Brede.

40. It is concluded that at Rye (western bank) any planning application received for the redevelopment of Previously Developed Land or for 'infill', that is within

a flood risk area, will require an Exception Test, which will be informed by the Level 2 SFRA. (See also the following Section – "Justification as to why some development uses cannot be relocated".) It has to be assumed that proposals within Flood Zones 2 and 3 for new residential development or other vulnerable uses, on 'greenfield' land and outside the existing Development Boundary are unlikely to pass the Exception Test. However, development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Rye (east of River Rother) or Rye East:

41. The main flood risk to Rye East is from the tidal River Rother. The risk is residual due to the presence of flood management measures in the form of earth embankments which protect Rye East from tidal events.

42. However, although the Shoreline Management Plan policy is to 'hold the line' for the next 100 years, the existing level of protection is only against the 1 in 5 year extreme tidal event and there is little prospect of it being raised to the 1 in 200 year standard before 2020 i.e. in 12 years time. In the past 18 months three emergency repairs have had to be carried out to the existing tidal embankment at Rye East.

43. All of the existing development at Rye East has taken place in the last 100 years and includes social housing at Kings Avenue and New Road, together with the Freda Gardham Primary School. This primary school will become redundant within the next year or so and therefore an acceptable new use will need to be found for the building/site. Rye East is entirely within Flood Zone 3a.

44. With current day scenarios all of the built up part of Rye East is either in a medium or high flood hazard zone. Scenarios taking into account the predicted increase in sea levels show virtually the whole area in the high flood hazard zone.

45. The A259 main south coast trunk road traverses this area, while the main south coast railway (Hastings-Rye-Ashford) abuts the area to the north.

46. It is concluded that at Rye, east of the River Rother, any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test, which will be informed by the Level 2 SFRA.

47. However, because of the high flood hazard and the defences being of a low standard, it has to be assumed that any planning application received for residential development or other vulnerable uses, including change of use, is unlikely to pass the Exception Test, until the defences have been brought up to the required standard. The EA had advised that there was little prospect of improvements to the defences until 2020. However, in July 2008, the EA

advised that the new indicative timetable shows construction of the scheme between 2011 and 2013.

Camber (east):

48. This area relates to The Suttons, Pellwood Road and the eastern part of the easternmost caravan park. A single embankment with a clay core protects the area from tidal flooding. Some overtopping has been recorded in the past. At present the Flood Hazard Risk is considered to be low/medium.

49. The Shoreline Management Plan is to 'hold the line'. At present the defences are not up to the required standard which would give protection from the 1 in 200 year extreme tidal event. The consultative draft flood and erosion management strategy proposes to complete the necessary improvements by 2015. In the meantime shingle will continue to be replenished.

50. The Rother District Local Plan, Inset Map No.10, shows a Development Boundary for Camber with virtually all parts of the development within Flood Zone 3.

51. It is concluded that at eastern Camber any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test and will be informed by the Level 2 SFRA. It has to be assumed that proposals for new residential development or other vulnerable uses, on 'greenfield' land and outside the existing Development Boundary are unlikely to pass the Exception Test. However, development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Camber (west and central):

52. Although virtually all of Camber lies within Flood Zone 3a it is protected by well developed sand dunes that are as high as 20 metres in places. The most vulnerable part is in the Sea Road area and in parts of the main caravan and chalet areas.

53. The Shoreline Management Plan is to 'hold the line' for the next 100 years. The draft consultation Flood and Erosion Management Strategy is to hold the line for the next 100 years. This provides an appropriate standard of protection against flood risk i.e. protection against the 1 in 200 year extreme tidal event.

54. The Rother District Local Plan, Inset Map No.10, shows a Development Boundary for Camber with virtually all parts of the development within Flood Zone 3.

55. Camber is the major seaside resort in Rother District with tourist accommodation for some 12,000, mainly in chalets and caravans, in addition to its permanent population. It has a village hall, shops, post office, public house, copious car parking, public conveniences etc.

56. It is concluded that at central and western Camber any planning application received for the redevelopment of Previously Developed Land or for 'infill' will require an Exception Test and will be informed to the Level 2 SFRA. It has to be assumed that proposals for new residential development or other vulnerable uses, on 'greenfield' land and outside the existing Development Boundary are unlikely to pass the Exception Test. However, development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Robertsbridge:

57. Robertsbridge is located at the confluence of the River Rother and the Glottenham Stream. The main flood risk to Robertsbridge is from fluvial flooding. This is addressed in the Rother and Romney Catchment Flood Management Plan, Consultative Draft March 2008. In recent years Robertsbridge has experienced significant flood events after periods of heavy rain, culminating in those of Autumn 2000. On 12 October 2000 some 88 properties were flooded, some to a depth of 1.5 metres. As a result of this flooding a flood alleviation scheme was constructed at Robertsbridge in 2003/4, which now gives protection against the 1 in 100 year extreme fluvial event.

58. The Draft CFMP policy for Robertsbridge is to 'Continue with existing or alternative actions to manage flood risk' (accepting that flood risk will increase over time from this baseline). It is proposed to maintain the Robertsbridge Flood Alleviation Scheme. The Council is seeking to secure an improvement to this policy i.e. 'To take further action to sustain the current scale of flood risk into the future' (responding to the potential increases in flood risk from urban development, land use change and climate change).

59. Robertsbridge has, arguably, the highest level of services and facilities of all the villages in Rother District. It is the only village with a secondary school, it has a main line railway station with services to London, Tunbridge Wells and Hastings, it is adjacent to the A21 Trunk Road, Hastings to London.

60. The Rother District Local Plan, Inset Map No.30, shows the Development Boundary for Robertsbridge, together with a housing allocation at Grove Farm and a mixed use allocation adjacent to Culverwells, both outside of flood Zones 2 and 3.

61. It should be possible to avoid areas at risk to flooding in searching for any required new allocation for development.

62. It is concluded that at Robertsbridge any planning application received for the redevelopment of Previously Developed Land or for 'infill', within a flood risk area, will require an Exception Test. It has to be assumed that proposals, within Flood Zones 2 and 3, for new residential development and other vulnerable uses, on 'greenfield' land and outside the existing Development Boundary are unlikely to pass the Exception Test.

Etchingham:

63. Etchingham is located at the confluence of the Rivers Rother and Dudwell. The main flood risk to Etchingham is from fluvial flooding. This is addressed in the Rother and Romney Catchment Flood Management Plan, Consultation Draft, March 2008. In recent years Etchingham has experienced significant flood events after periods of heavy rain, culminating in those of Autumn 2000. On 12 October 2000 some 16 properties were flooded, including the railway station. There are no current or proposed flood alleviation schemes for Etchingham.

64. The Draft CFMP policy for Etchingham is to 'Continue with existing or alternative actions to manage flood risk' (accepting that flood risk will increase over time from this baseline). The Council is seeking to secure an improvement to this policy i.e. 'To take further action to sustain the current scale of flood risk into the future' (responding to the potential increases in flood risk from urban development, land use change and climate change).

65. Etchingham has a primary school, local facilities, some employment uses and a main line railway station with services to London, Tunbridge Wells and Hastings. It is also situated on the A265.

66. The Rother District Local Plan, Inset Map No.13, shows a Development Boundary for Etchingham, together with a mixed use allocation.

67. It should be possible to avoid areas at risk to flooding in searching for any required new allocations for development.

68. It is concluded that at Etchingham any planning application received for the redevelopment of Previously Developed Land or for 'infill', within a flood risk area, will require an Exception Test. It has to be assumed that proposals within Flood Zones 2 and 3, for new residential development and other vulnerable uses, on 'greenfield' land and outside the existing Development Boundary are unlikely to pass the Exception Test.

Crowhurst:

69. Crowhurst lies at the confluence of the Powdermill Stream and the Mill Race which are tributaries of the Combe Haven. The main flood risk to Crowhurst is from fluvial flooding. This is addressed in the Cuckmere and Sussex Havens Catchment Flood Management Plan, November 2006. In recent years parts of

70. The CFMP policy for Crowhurst is ‘Take further action to sustain the current level of flood risk into the future’ (responding to the potential increases in risk from urban development, land use change and climate change).

71. Crowhurst has a main line railway station with services to Hastings, Tunbridge Wells and London. It has a primary school.

72. The Rother District Local Plan, Inset Map No.12, shows a Development Boundary for Crowhurst.

73. The CFMP states that ‘There should be no development in the flood plain’ and that ‘Make sure there is no increase in run-off from new developments’.

74. It is concluded that at Crowhurst any planning application received for redevelopment of Previously Developed Land or for ‘infill’, within a flood risk area, will require an Exception Test. It has to be assumed that proposals within Flood Zones 2 and 3, for new residential development and other vulnerable uses, on ‘greenfield’ land and outside the existing Development Boundary are unlikely to pass the Exception Test.

Justification as to why some development uses cannot be relocated.

75. The purpose of the Core Strategy is to promote the continued growth of settlements, together with the regeneration of underused and unused areas that have been previously developed, to ensure their continued sustainability as active and vibrant towns or villages. In addition to residential and employment uses, retail, eating and drinking and recreational/tourist activities are often associated with these settlements/areas.

76. Residential uses are required in towns and villages to strengthen the use of existing facilities and services. They are also sustainable locations for residential properties. This objective is informed by Government policy and guidance in PPS3 on optimising accessible sites.

77. Some sites that require redevelopment are in historic, waterside locations and which fall within Flood Zone 3. Locating development on sites outside flood risk areas would fail to achieve regeneration objectives, resulting in the decline of the area and a decline in economic activity. Consequently there would be an increase in underused or unused brownfield sites as the settlement or area declined. Rock Channel, Rye is an example of such a location. Excluding regeneration in such an area would be economically and socially unacceptable resulting in less sustainable development. It would also lead to

Planning Applications

78. Whenever a planning application is received in respect of land/buildings known to be in Flood Zones 2 or 3, or in areas known to flood or access is only possible through Flood Zones 2 or 3 the Sequential Test and Exception Test will need to be applied and a Site Specific flood risk Assessment provided. The Environment Agency will also be consulted for their comments where appropriate.

79. Apart from those settlements already listed, both Jury's Gap and East Guldeford are entirely within Flood Zones 2 and 3. In addition other settlements known to experience flooding or are within Flood Zone 2 include Battle, parts of Bexhill, Bodiam, Fairlight Cove, Northiam, Peasmarsh, Sedlescombe, Three Oaks, Winchelsea and Watermill (north of Bexhill).

80. The Sequential Test for sites will be carried out in accordance with PPS25, its accompanying Companion Guide, together with good practice guidance prevailing at the time.

Conclusion

81. It has to be assumed that proposals, in Flood Zones 2 and 3 for new residential development and other vulnerable uses on 'greenfield' land and outside the existing Development Boundary, are not likely to pass the Sequential and Exception Tests, as the scale of development required to support communities is relatively low and may be accommodated on previously development land (PDL). PDL sites will be required to pass the Exception Test and at Rye (East of the River Rother) this is unlikely, until the new defences are in place.

82. Development essential for local community needs, such as community buildings or affordable housing for local people, may, exceptionally, be required. In such circumstances the least vulnerable flood risk location will, where possible, be chosen and the necessary mitigation measures put in place.

Table D.1: Flood Risk Zones

Zone 1 Low Probability **Definition** This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%). **Appropriate uses** All uses of land are appropriate in this zone. **FRA requirements** For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a FRA. This need only be brief unless the factors above or other local considerations require particular attention. See Annex E of PPS25 for minimum requirements. **Policy aims** In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage techniques.
Zone 2 Medium Probability **Definition** This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% – 0.1%) in any year. **Appropriate uses** The water-compatible, less vulnerable and more vulnerable uses of land and essential infrastructure in Table D.2 are appropriate in this zone. Subject to the Sequential Test being applied, the highly vulnerable uses in Table D.2 are only appropriate in this zone if the Exception test is passed. **FRA requirements** A FRA should accompany all development proposals in this zone. See Annex E of PPS25 for minimum requirements. **Policy aims** In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage techniques.

Zone 3a High Probability

Definition

This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Appropriate uses

The water-compatible and less vulnerable uses of land in Table D.2 are appropriate in this zone.

The highly vulnerable uses in Table D.2 should not be permitted in this zone.

The more vulnerable and essential infrastructure uses in Table D.2 should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

FRA requirements

A FRA should accompany all development proposals in this zone. See Annex E of PPS25 for minimum requirements.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

i. reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques;

ii. relocate existing development to land in zones with a lower probability of flooding; and

iii. create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Zone 3b The Functional Floodplain

Definition

This zone comprises land where water has to flow or be stored in times of flood. SFRAs should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes).

Appropriate uses

Only the water-compatible uses and the essential infrastructure listed in Table D.2 that has to be there should be permitted in this zone. It should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

Essential infrastructure in this zone should pass the Exception Test.

FRA requirements

A FRA should accompany all development proposals in this zone. See Annex E of PPS25 for minimum requirements.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

i. reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage techniques; and

ii. relocate existing development to land with a lower probability of flooding.

Note: *These Flood Zones refer to the probability of river and sea flooding ignoring the presence of defences.*

Table D.2: Flood Risk Vulnerability Classification

Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure including electricity generating power stations and grid and primary substations.
Highly Vulnerable	• Police stations, Ambulance stations and Fire stations and Command Centers and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent.
More Vulnerable	• Hospitals. • Residential institutions such as residential care homes, childrens' homes, social services homes, prisons and hostels. • Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, **subject to a specific warning and evacuation plan.**
Less Vulnerable	• Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non-residential institutions not included in 'more vulnerable'; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment plants. • Sewage treatment plants (if adequate pollution control measures are in place).
Water Compatible Development	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel workings. • Docks, marinas and wharves. • Navigation facilities. • MOD defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, **subject to a specific warning and evacuation plan.**

Note:

1) This classification is based partly on Defra/ Environment Agency research on Flood Risks to People and also on the need of some uses to keep functioning during flooding.

2) Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.

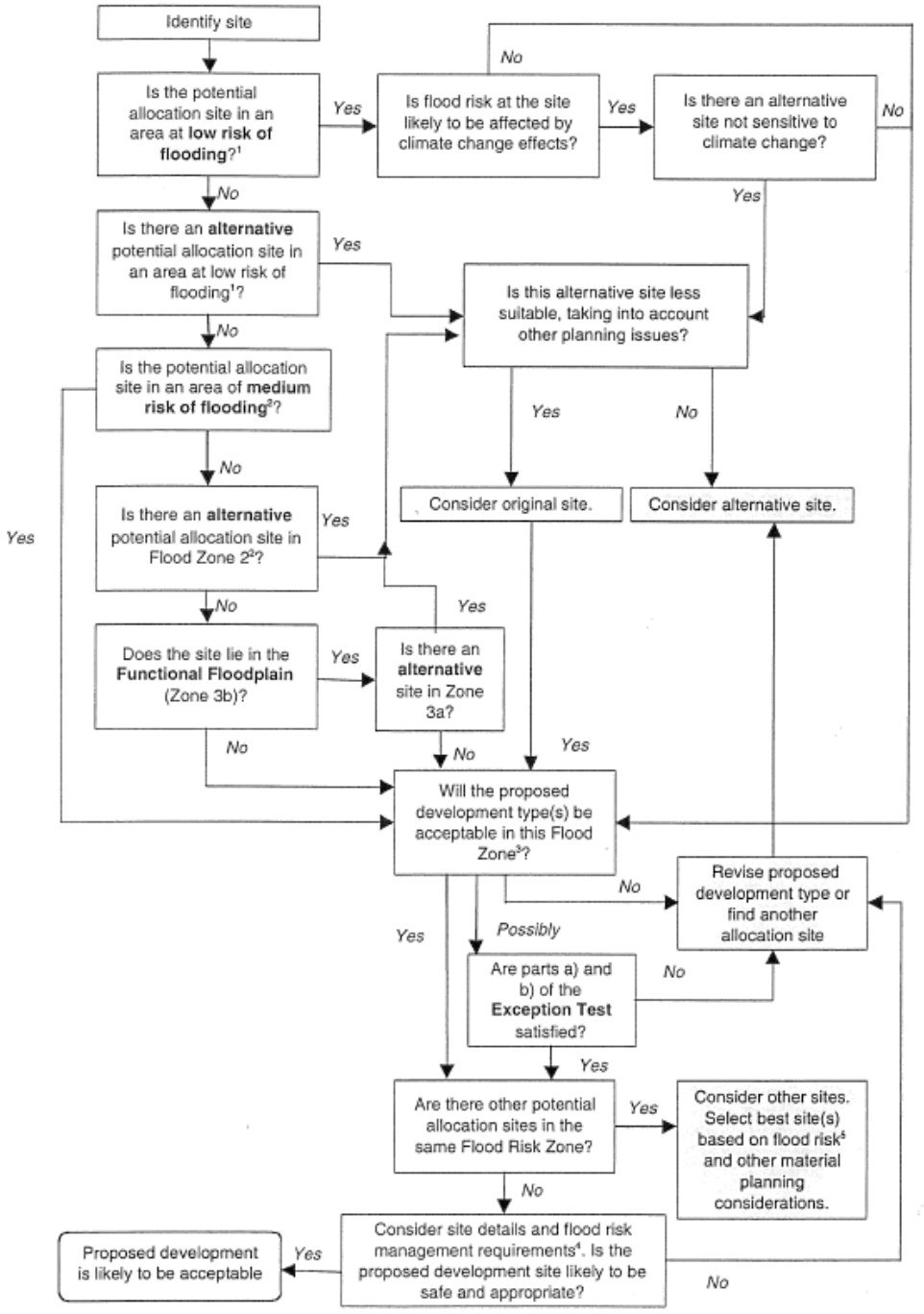
3) The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

Table D.3: Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (see Table D.1)	Zone 1	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate
	Zone 2	Development is appropriate	Development is appropriate	Exception test required	Development is appropriate	Development is appropriate
	Zone 3a	Exception test required	Development is appropriate	Development should not be permitted	Exception test required	Development is appropriate
	Zone 3b 'Functional Floodplain'	Exception test required	Development is appropriate	Development should not be permitted	Development should not be permitted	Development should not be permitted

Vulnerable

Figure 3.1 Application of the Sequential Test



Notes

1 Flood Zone 1 for fluvial and tidal flooding and with a low risk of flooding from other sources.
2 Flood Zone 2 for fluvial and tidal flooding and with a medium risk of flooding from other sources.
3 As defined by the Sequential Test.
4 Development to be safe and to not increase flood risk elsewhere. Required to pass part c) of the Exception Test, where applicable.
5 Including susceptibility to future climate change and residual flood risk.