

Our ref: UT/2006/100274/BD-01/IC1-L03

Your ref: WBCSWC

Date: 21 January 2008

FAO Beccy Dunn,

Dear Madam,

**COVENTRY, SOLIHULL AND WARWICKSHIRE STRATEGIC FLOOD RISK
ASSESSMENT**

Thank you for the e-mail dated 14 January 2008 and the subsequent telephone call regarding the amendments you intend to make to the above revised draft Strategic Flood Risk Assessment (SFRA).

We can confirm that the Environment Agency is satisfied with these amendments.

Yours faithfully

**Miss Sarah Victor
Planning Liaison Officer**

Direct dial 01543 404880

Direct fax 01543 444161

Direct e-mail sarah.victor@environment-agency.gov.uk

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B16 8PE

Our ref: UT/2006/100274/BD-
01/IC1-L01
Your ref: WBCSWC
Date: 14 December 2007

FAO Beccy Dunn,

Dear Madam

COVENTRY, SOLIHULL and WARWICKSHIRE STRATEGIC FLOOD RISK ASSESSMENT

Thank you for consulting us of the above draft Strategic Flood Risk Assessment (SFRA) which was received 26 November 2007.

We have reviewed the information and wish to make the following comments:

All SFRAS

As much of the SFRAs are generic text we consider that a generic document with individual supporting documents for each council would be more useful. This would mean that only the supporting documents would have to be updated as more information became available, whilst the main generic document would introduce a consistent approach to flood risk for all the councils involved in this project and would only require alterations if there were changes in national planning policy.

1.2 Project Aims

The definition of a "safe" development only relates to safe pedestrian access and does not mention the safety of the development itself, or its affect on downstream property. We would wish for this definition to be broadened.

3.4 Environment Agency Flood Zone Maps

The limitations of the Flood Zone outlines have still not been made clear in Appendix C, as per Sarah Mallett's e-mail of 4 Oct 07: -

The Agency's Flood zone maps do not show all minor watercourse flood plains, For any site (not just those over 1ha) adjacent to an unmapped watercourses (Shown as Flood zone 1) it is therefore necessary to undertake a site specific FRA to establish the true flood plain extent and flood risk to the site. The SFRA should therefore advise LPAs to look at extending the flood zone outlines on all watercourse in FZ1 shown on the 25k OS map,

particularly where these have been identified as being within potential development areas.

7.2 Policy Considerations

In principle we have no issues but think the wording could be clearer regarding runoff reductions;

Greenfield Rate or reduction of at minimum 20%

7.3 Development Control Policies

The issue of breach scenario as set out in part 1 of 'Future Development in Flood Zone 3' is relevant for all sites irrespective of the fluvial flood risk category and hence should be included in all the Flood Zone categories.

In Sections 7.3 and 9.1.1, it states that "essential infrastructure" can be located in flood zone 3b. We believe this needs further clarification. Transportation routes may have to cross river valleys and account would need to be taken for these circumstances however, development such as hospitals and police station in 3b may be deemed unacceptable.

10.2 Types of SUDS Systems

This section may also want to refer at the end to CIRIA c644 - Green Roofs and we would wish to see a requirement for SUDS in all cases not just sites over 1 hectare.

The Geological and Floodwatch areas on the mapping do not show up in the PDF, as the base mapping is overlain over the top of them.

Additional Points:

- Reference needs to be made to watercourses crossing sites which do not have any flood zone. All will require an assessment of risk associated with flooding from those particular watercourses.
- In Rugby, Warwick and Coventry the document refers to the River Trent CFMP. These two areas both drain to the Severn and therefore the Severn CFMP applies and not the Trent. This needs to be amended.

Specific comments relating to each LPA:

NUNEATON & BEDWORTH BOROUGH COUNCIL

1.7.1 Main Rivers and Hydrology - The Borough is covered by three designated Main Rivers:

- The following Main Rivers have been omitted from the list (but included in the NMRs paragraph) : -

- Wem Brook SP 3662 9118 to SP 3738 8932
 - Breach Brook SP 3422 8494 to SP 3334 8526 (check Grid Ref with Main River Schedule)
 - Bedworth Sloughs Brook SP 3504 8685 to SP 3502 8610 (check Grid Ref with Main River Schedule)
 - Change Brook SP 3805 9368 to SP 3614 9284
- The following Non Main Rivers have been omitted from the minor watercourses paragraph: -
 - Holly Stitches Brook
 - Griff Brook

5. Strategic Flood Risk Mapping - 5.1 Strategic Flood Risk Maps

We would like to question whether the SFRA Maps should also identify at ground level (top water surface) water bodies that form a fundamental part of the Artificial Drainage/flood defence system, which should not be allowed to be filled in/developed. The document only mentions the Bar Pool Brook Storage Lake as being one of these systems, but other balancing pools may also have been constructed as part of development site for flood risk alleviation purposes.

N&B BC Ward Councillor Tony Lloyd has recently advised Sarah Mallett of the Agency that a balancing pool just north of The Willows performs such a function and he believes that it is currently proposed to be filled in, in order to allow development. This issue should be clarified further.

To discuss this issues further please contact Sarah Mallet, Tel. 01543 405029.

6.1.2 Flood Risk Management Strategies

We would like to know why the Tame Strategy has not been reviewed for inclusion in this document. This section clearly states that the options listed come from the Tame Strategy, and that Nuneaton & Bedworth Borough Council area does not feature in either the Trent or Severn Strategies. These issues need to be rectified. To discuss these issues further please contact Sarah mallet, Tel. 01543 405029.

Solihull Metropolitan Borough Council

5.1.1 Hydraulic (River) Models

The River Blythe which runs through the borough has also been modelled and needs to be included within the text in addition to the references regarding the River Cole.

In addition we have additional comments from our Flood Risk Mapping and Data Management Technical Specialist, Demi Korontzi, please see attached sheet, to discuss any of these issues please contact Demi direct on Tel. 01543 404983.

Yours faithfully

**Miss Sarah Victor
Planning Liaison Officer**

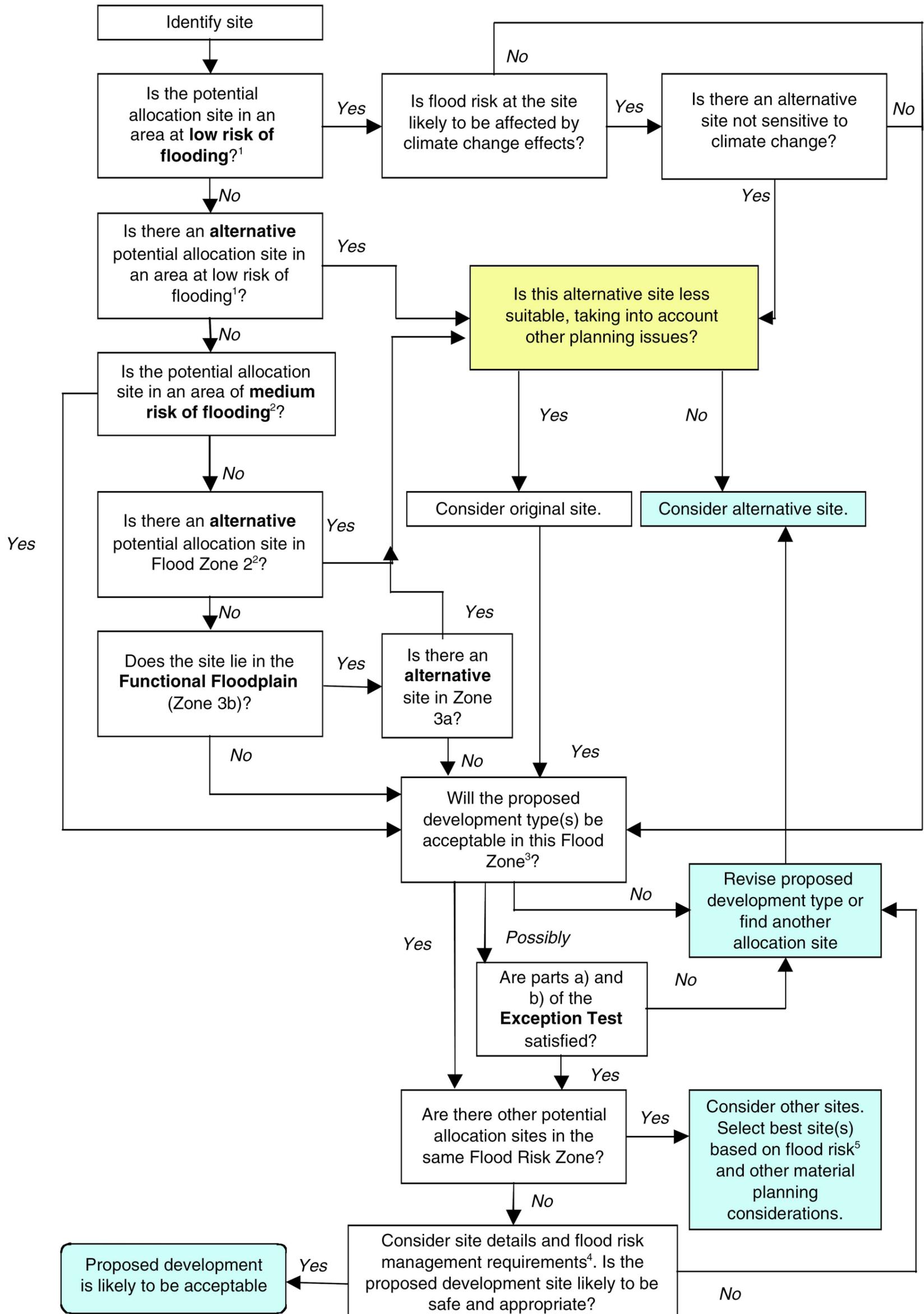
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Appendix B

SEQUENTIAL TEST PROCESS



Appendix C

Details of the Environment Agency Flood Zones

Introduction

A more detailed understanding of the Environment Agency Flood Zones and their limitations is important, as these are often used (unless more accurate flood outlines are available) for the production of SFRA flood maps.

Environment Agency Fluvial Maps

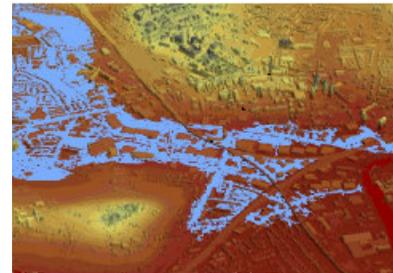
Data for fluvial Flood Zones 3 and 2 is derived from a number of sources. Most fluvial flood outlines are derived from the “JFlow” generalised computer modelling, which is a ‘coarse’ modelling approach. Some observations of flooding by the Environment Agency’s predecessors are included, for instance the extent of the severe 1947 floods, and this usually applies to Flood Zone 2. If a flood event extends further than Flood Zone 2 then the outline would be changed to reflect the wider flood risk area.

Caution must be exercised in interpreting JFlow derived flood outlines due to the large number of assumptions incorporated into the JFlow model. For instance, at some locations the river centreline incorporated into the model was found to be erroneous with the result that the associated flood plains deviate from the natural valleys.

All Environment Agency Flood Zone Maps show the flood extent without the influences of defences.

Updates of the Environment Agency Flood Maps from Modelling

In many places the results of flood mapping studies have superseded the JFlow model. Generally these studies included high quality hydrological research, surveyed river cross sections, and more precise digital modelling such as ISIS, TuFlow and HecRas.



Although fluvial flooding is dependent on the standard of maintenance of watercourses and structures, the degree of maintenance allowed for tends to vary from model to model, with the result that flood maps based on modelling do not offer a uniform approach in this respect. As a consequence, serious blockages occurring during a flood might produce much more flooding than shown on previous modelling for a similar hydrological event.

Updates of the Environment Agency Flood Maps from Recent Events

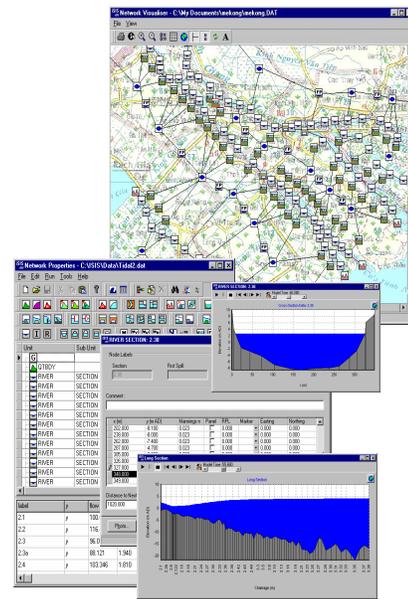
Records of recent flood events have been used to modify the flood map. In these cases the Environment Agency has determined the return frequency of the observed event and modified the appropriate flood zone accordingly.

ISIS Software Graphic Interface

When evidence of flooding is based on aerial photographs, there is often uncertainty about a) whether the flooding has emanated from the river or is the result of other land drainage, b) the precise flood return period and c) whether the flooding was the result of blockage or some other maintenance factor.

Non Main River flooding in the Environment Agency Flood Maps

Fluvial Flood Zone maps show some non main river watercourse flooding as well as main river watercourse flooding. Main rivers are principal watercourses defined by Section 93 of the Water Resources Act, 1991 and shown on a formal map held by the Environment Agency – the Environment Agency flood zones. Larger ordinary watercourses are shown on the background Ordnance Survey mapping.



It should be noted that not all minor watercourses have had Flood Zone maps produced for them. Only watercourses with a catchment area greater than 3km² have been modelled using JFlow software and, therefore, smaller watercourses as identified on the 25K OS map within Flood Zone 1 may not be covered by the Environment Agency Flood Maps. As such, for any development site located adjacent to an unmapped watercourse within Flood Zone 1, it is recommended that an 8m development easement from the top of bank is applied, and a site specific FRA is undertaken.

Areas Benefiting from Defences

The current flood maps, although they are based on the “undefended situation”, show selected raised formal flood defences (built since 1998), and selected “areas benefiting from defences” (ABDs). This is land where flooding is prevented by defences, although it is assumed that the defences are robust, leak free and maintained, which is not always the case. Improved channels are not normally regarded as defences for the purposes of flood zone mapping.

Climate Change Effect on Flood Zones

In the absence of better information, the current fluvial Flood Zone 2 can be considered an estimate of the extent of fluvial Flood Zone 3 within 100 years. Similarly, Flood Zone 3a can be considered an estimate of the extent of fluvial Flood Zone 3b within 100 years.

As noted, current Environment Agency formal flood maps generally do not take into account the effect of climate change on winter rainfall and tide levels, or the effect of changes in the levels of tectonic plates on tide levels.