Melton Borough Council

Strategic Flood Risk Assessment

Stage 2 - Strategic Assessment of Flood Risk - Updated to PPS25

9 January 2008
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Melton Borough Council

Strategic Flood Risk Assessment

Stage 2 - Strategic Assessment of Flood Risk - Updated to PPS25

9 January 2008

Entec UK Limited
Executive Summary

Purpose of this Report

Context

Melton Borough Council is in the process of developing their Local Development Framework (LDF) with a view to planning for the future development needs of the Borough. These needs are driven by strategic plans which have specified a need for an additional 4200 new dwellings and 125 ha of land for business use in the period 1996 to 2016. Taking into account allocations to date, and estimated opportunities for redevelopment of brownfield sites, the Council has estimated a need for approximately 60 ha of greenfield land to meet these needs. This presents an opportunity to plan for sustainable development that is located and designed to reduce flood risk.

Entec was originally commissioned in 2005 to undertake a Strategic Flood Risk Assessment (SFRA) of Melton Borough. This document, produced in 2007, is an update of the original SFRA to PPS25 and its accompanying Practice Guide. The key objective of the Melton SFRA is to inform the LDF with respect to local flood risk issues and the location of future development in Melton Borough. The importance of flood risk and its implications for development has been highlighted by the recent history of significant flood events in the Borough which caused inundation of properties in the Bottesford area in 2001 and in the Wreake/Eye catchment (including Melton Mowbray) on a number of occasions between Easter 1998 and January 1999.

The study provides an analysis of the main sources of flood risk in Melton Borough, together with a means of testing the areas of search with a view to prioritising those with the lowest associated flood risk.

The Environment Agency has been involved in all stages of producing the SFRA.

SFRA Process

In line with the general approach of all SFRAs, a sequential, risk-based approach to assessing development and flood risk was undertaken, in line with the guidance outlined in PPS 25 Development and Flood Risk. The PPS 25 Sequential Test has been applied using a tiered approach to assess all potential sources of flood risk based on a range of both local and broad-scale information relating to flood risk.

The overriding aim of the PPS 25 Sequential Test is to steer all new development to areas of lowest flood risk. It is primarily based on the Environment Agency flood zones, which delineate areas by their level of risk due to river flooding. Based on the Borough’s future development needs and the areas of search identified, it was found that there was sufficient land in Zone 1 (i.e. areas with a low probability of flooding) to preclude the need to direct development to any of the higher risk flood zones. Secondary sources of flooding were also considered (including fluvial risk due to minor watercourses, groundwater, overland flow, structural blockages and sewer flooding) to refine the prioritisation of sites with the least risk of flooding. Guidance for the Councils’ planners on the
application of the Exception Test has been produced in relation to the flood risk to people and property within Melton.

**Underlying Assumptions**

The prioritisation of sites as part of this SFRA does not preclude the need for a more detailed assessment (in the form of a Flood Risk Assessment) for sites selected for future development. This includes a need to consider all mechanisms of flooding as flood risk is never eliminated completely. The sites identified for prioritisation are merely considered to have the lowest risk of the areas of search, not zero risk.

It is recognised that the final selection of sites for future development will depend on a range of planning pressures. Sites not prioritised by the Melton SFRA process are not necessarily ‘ruled out’ of development. Clearly, the reasons why they were not prioritised should be considered in any decision to develop these sites. As with all new development, the guidance in PPS25 will determine whether development may be permitted, including a requirement to satisfy the criteria of a Flood Risk Assessment.

**Conclusions and Recommendations**

This SFRA has developed an approach commensurate with the specific needs of Melton Borough to test the areas of search in accordance with the PPS 25 Sequential Test and prioritise those with the lowest associated flood risk. The process developed for this study, together with the information on flood risk provided, should be used to test future developments and form the basis for requesting detailed Flood Risk Assessments.

The results of the Melton SFRA should be used to inform the LDF which needs to be in place by 2007. Provisions should be made for updating the SFRA outputs on a regular basis, particularly where new information on flood risk and climate change becomes available or before the LDF is due for revision.

Significant amounts of information were collated in the preparation of the Melton SFRA, including the development of a GIS to store historical flood records held by Melton Borough Council. These sources of information were instrumental in informing the assessment of flood risks, particularly with respect to sources of flooding that are not managed by the Environment Agency. It is highly recommended that the database of knowledge relating to actual flood events is expanded and updated as new information arises, to build and maximise the knowledge of flood risk issues local to Melton Borough.

It is important to reinforce the message that detailed Flood Risk Assessments are still essential for specific sites selected for development. To this end, a set of guidance notes for developers is recommended to complement the findings of the Melton SFRA.
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## Glossary

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<td>Design Flood Event</td>
<td>Flood event that has a given probability of occurrence and is used to design flood defences or alleviation schemes, or produce flood risk maps.</td>
</tr>
<tr>
<td>Exception Test</td>
<td>The PPS 25 Exception Test is the process by which departures from the Sequential Test (see entry below) may be justified where it is necessary to meet the wider aims of sustainable development.</td>
</tr>
<tr>
<td>Flood Defence</td>
<td>Man made structure - embankment, bund, sluice gate, reservoir, barrier - designed to prevent flooding of areas adjacent to the defence.</td>
</tr>
<tr>
<td>Flood Resilience</td>
<td>Measures which ensure that a property situated on the floodplain is not damaged during a flood event. They are mainly related to preventing floodwater from entering the property or ensuring that if water was to enter the property, no damage would be caused.</td>
</tr>
<tr>
<td>Flood Resistant</td>
<td>Measures which reduce the amount of water entering a building during a flood. It is important that these measures are fallible as they may involve the insertion of protective barriers (in doorways) by occupants; water pressure also limits the flood-depth in which they can be applied.</td>
</tr>
<tr>
<td>Floodplain</td>
<td>Topographic area adjacent the rivers, the coast or estuaries liable to flooding.</td>
</tr>
<tr>
<td>Hydraulic</td>
<td>Related to the flow of water.</td>
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<tr>
<td>Inundation</td>
<td>Overflowing of water onto land that is normally dry. In the case of Melton Mowbray, causes of inundation could include (but not necessarily be limited to) rivers, groundwater, overland flow, culvert blockages, structural failures, and sewer flooding.</td>
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1 PPS 25 Development and Flood Risk, Communities and Local Government, December 2006.
Local Development Framework | The Local Development Framework (LDF) is at the heart of the new planning system introduced by the Planning and Compulsory Purchase Act 2004\(^2\). The LDF will comprise Local Development Documents (LDDs), including the Development Plan Documents (DPDs) (statutory planning documents) and supplementary planning documents which expand on policies or provide greater detail. The development plan documents may include a core strategy, site specific allocations and an adopted proposals map.

Planning Obligations | Planning Obligations (or s106 agreements) are private agreements negotiated as part of planning applications between local planning authorities and developers which are intended to make acceptable development that would otherwise be unacceptable in planning terms\(^3\).

Planning Policy Guidance and Statements for England | Planning Policy Guidance Notes (PPGs) and their replacements Planning Policy Statements (PPSs) are prepared by the government after public consultation to explain statutory provisions and provide guidance to local authorities and others on planning policy and the operation of the planning system. They also explain the relationship between planning policies and other policies which have an important bearing on issues of development and land use. Local authorities must take their contents into account in preparing their development plans. The guidance may also be relevant to decisions on individual planning applications and appeals.

Residual Risk | Flood risk associated with areas afforded protection from flood defences or alleviation schemes. The residual risk is the remaining risk of flooding due to exceedence of the design flood event (see entry above) or the failure of the scheme itself (structural or operational).

Regional Spatial Strategy | Following the enactment of the Planning and Compulsory Purchase Act 2004, Regional Planning Guidance (RPG) has become part of the statutory development plan and has been re-named as a Regional Spatial Strategy (RSS). It covers the scale and distribution of new housing, priorities for the environment, transport, infrastructure, economic development, agriculture, minerals extraction, waste treatment and disposal.

Sequential Test | The PPS 25 Sequential Test refers to the process of determining the suitability of land for development in flood risk areas, central to the PPS 25 guidance, and to be applied to all levels of the planning process\(^4\).

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\(^3\) Draft Revised Circular on Planning Obligations (Consultation Document), Office of the Deputy Prime Minister, November 2004.

\(^4\) PPS 25 Development and Flood Risk, Communities and Local Government, December 2006.
Supplementary Planning Document

Supplementary Planning Documents expand policies set out in a development plan document or provide additional detail on both thematic and site specific matters. They are not subject to independent examination and therefore do not form part of the statutory development plan, nor are they used to allocate land.

UK Climate Impacts Programme 02 Scenarios

UK climate change scenarios are often used to assess the potential impact of climate change in the UK based on different global emission scenarios. Four UKCIP02 scenarios have been derived from climate model runs at the Hadley Centre and are described in detail in the UKCIP02 Scientific Report. Each of the climate scenarios is based on a different global emissions scenario that was developed for the Intergovernmental Panel on Climate Change Special Report on Emissions Scenarios.
Abbreviations

ABI  Association of British Insurers
AOD  Above Ordnance Datum
BW   British Waterways
CFMP  Catchment Flood Management Plan
CIRIA  Construction Industry Research and Information Association
CLG  (Department for) Communities and Local Government
CSO  Combined Sewer Overflow
DEFRA  Department for the Environment, Food and Rural Affairs
DPD  Development Plan Documents
DTM  Digital Terrain Model
EA  Environment Agency
ESS  Environmental Stewardship Scheme
FEH  Flood Estimation Handbook
FRA  Flood Risk Assessment
GIS  Geographical Information System
IDB  Internal Drainage Board
ISIS  1-D hydraulic modelling software, commonly used in flood modelling
JFLOW  JFLOW (2D flood modelling software package)
LDD  Local Development Document
LDF  Local Development Framework
LDS  Local Development Scheme
LPA  Local Planning Authority
MBC  Melton Borough Council
NAIDB  Newark Area Internal Drainage Board
OW  Ordinary Watercourses
PAG 2  Project Appraisal Guidance 2
PPG  Planning Policy Guidance
PPS  Planning Policy Statement
RFRA  Regional Flood Risk Assessment
RPB  Regional Planning Bodies
RSS  Regional Spatial Strategy
SCP  Sustainable Communities Plan
SFRA  Strategic Flood Risk Assessment
STW  Severn Trent Water
SuDS  Sustainable Drainage Systems
UKCIP  United Kingdom Climate Impact Programme
1. Introduction

1.1 Background

Future development needs in Melton Borough have been broadly outlined in the Leicestershire, Leicester and Rutland Structure Plan, and Melton Borough Council is now considering these needs at a local level in the emerging Melton Local Development Framework (LDF). The LDF presents an opportunity to plan sustainable development that is located and designed to reduce flood risk. The importance of flood risk and its implications for development has been highlighted by the recent history of significant flood events in the Borough which has caused properties to be inundated in the Bottesford area in 2001 and in the Wreake/Eye catchment (including Melton Mowbray) on a number of occasions between Easter 1998 and January 1999.

1.2 Scope and Objectives

Entec was originally commissioned in 2005 to undertake a Strategic Flood Risk Assessment (SFRA) of Melton Borough. This document, produced in 2007, is an update of the original SFRA to PPS25 and its accompanying Practice Guide. One of the primary goals of the SFRA is to assess the flood risk of the areas of search through the application of the sequential test outlined in the emerging Planning Policy Statement 25 (PPS25) Development and Flood Risk and its accompanying Practice Guide. The SFRA will also provide those involved in the planning and control of development in the Borough with a better understanding of flood risk issues throughout the Borough. This SFRA was produced by working with the Environment Agency, who was consulted throughout the SFRA process.

This report documents Stage 2 Strategic Assessment of Flood Risk of the Melton SFRA. It should be read in conjunction with the report on Stage 1 Data Collection and Review which can be found in Appendix A.

1.3 Structure of the Report

This report comprises the following sections:

- Section 1 provides the background, scope and objectives of the Melton SFRA;
- Section 2 describes the future development planned in Melton Borough which is a key driver of the SFRA;
- Section 3 summarises the planning context for development and management of flood risk on a national, regional and local level;
- Section 4 outlines the general approach of SFRAs and how this has been applied in Melton Borough;
• Section 5 provides an overview of flood risk in the Borough including potential sources of flood risk, modelled flood risk along the Rivers Eye/Wreake and Devon, historical flood events and flood alleviation schemes, and the potential impacts of residual risk, climate change and uncertainty on the SFRA;

• Section 6 assesses the flood risk to the areas of search based on the PPS25 Sequential Test to guide prioritisation for development;

• Section 7 outlines flood risk mitigation measures to control flood risk whilst allowing development in the Borough;

• Section 8 concludes the SFRA and provides recommendations for the application of the SFRA findings in the LDF as well as the Development Control process;

• Section 9 lists references.
2. Planned Development

2.1 Introduction

The SFRA has a major role in informing the location of future development allocations. If not considered carefully, floods can pose a threat to life and cause substantial damage to property. Through good planning and management of the location of new development, flood risk can be significantly reduced. The following section outlines the development patterns currently proposed for Melton Borough for which flood risk, amongst other issues, will need to be considered.

2.2 Overall Development Need

The Melton Local Plan which covers the period 1991 to 2006 provides detailed allocation identifying the location of development in the Borough up to 2006. However, the plan is now becoming out-of-date and the Council have commenced work on the preparation of their Local Development Framework (LDF) in accordance with the Planning and Compulsory Purchase Act 2004. Due to this transition, the allocations and new development in the area outlined in the Melton Local Plan will not carry as much weight for this SFRA. It will instead consider existing undeveloped allocations and urban capacity sites and locations of future growth in the Borough.

The preparation of the Council’s LDF will be informed by the recent adoption (in March 2005) of the following documents:

- East Midlands Regional Spatial Strategy (RSS);
- Leicestershire, Leicester and Rutland Structure Plan.

The East Midlands RSS provides the framework for development in the region up to 2021. Policy 7 of the RSS identifies that development in the Eastern sub-areas should seek to strengthen sub-regional centres including Melton Mowbray. The RSS identifies that within the Structure Plan area of Leicestershire, Leicester and Rutland there will be a requirement to provide sufficient land to accommodate 3150 new dwellings per year between 2001 and 2021.

The Leicestershire, Leicester and Rutland Structure Plan requires that sufficient land is released for housing to accommodate some 63,000 dwellings in the period 1996 to 2016. Of this, 4200 new dwellings are to be provided in Melton Borough. Taking into account allocations from 1996, Melton needs to provide an additional 2133 houses from March 2005. In addition, there is a provision for 1244 ha of land for business use in the plan area over the same period, of which 125 ha have been allocated to Melton Borough.

Melton Borough Council has estimated that, in addition to redevelopment of brownfield sites, there will be a need for approximately 60 ha of greenfield land to meet the future development needs outlined above.
2.3 Areas of Search

Most new development is expected to take place in and adjoining Melton Mowbray. The Council has placed the villages in the rural area in three categories according to their suitability for further development. Category 1 indicates villages where land could be allocated for development if it becomes necessary to identify sites outside Melton Mowbray. Preference will be given to development in the following locations:

- Within Melton Mowbray town centre;
- Within the urban area of Melton Mowbray;
- Adjoining the edge of Melton Mowbray;
- Within a Category 1 village;
- Adjoining the edge of a Category 1 village.

Other important considerations are a preference to redevelop brownfield sites over greenfield land where possible, and the proposal for a new bypass of Melton Mowbray which is likely to affect how new development in the LDF is distributed around the town.

Melton Borough Council has identified 11 areas of search around the edge of Melton Mowbray to accommodate future development needs. These areas range in size from approximately 50 to 120 ha. Melton Borough Council has estimated a need for 60 ha of greenfield land (in addition to redevelopment of brownfield sites).

Figure 2.1 shows the location of the preferred areas of search including; Melton Mowbray itself, the 11 areas of search around the edge of Melton Mowbray, and the Category 1 villages of Asfordby, Bottesford, Long Clawson and Waltham on the Wolds.
Key:
- 11 Potential development areas (Melton Mowbray)
- Borough boundary
- 4 Category 1 villages

Melton Mowbray SFRA

Figure 2.1
Planned Development

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