Leicestershire LFRMS SEA Environmental Report

Final Report

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Leicestershire County Council

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This report describes work commissioned by Leicestershire County Council. Harry Rowlands and Harriet Thomlinson of JBA Consulting carried out this work.

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Purpose

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Abbreviations

Acronym	Description
BAP	**Biodiversity Action Plan** Plans developed by organisations to protect and enhance the biodiversity of an area.
DWMP	**Drainage and Wastewater Management Plan** Report that details the long-term strategy for how wastewater systems, and the drainage networks that serve them, are to be extended, improved, and maintained to ensure they are resilient against future pressures such as climate change and population growth.
EA	**Environment Agency** Non-departmental public body responsible for protecting and improving the environment.
FCERMS	**Flood and Coastal Erosion Risk Management Strategy**

	The strategy describes what needs to be done by all risk management authorities involved in flood and coastal erosion risk management for the benefit of people and places.
GCSE	**General Certificate of Secondary Education** A qualification in a specific subject typically taken by school students between 14-16.
HER	**Historic Environment Record** Information service that provides access to comprehensive and dynamic resources relating to the archaeology and historic built environment of a defined geographic area.
IMD	**Indices of Multiple Deprivation** The Index of Multiple Deprivation measures relative deprivation in an area. It is a combined measure of deprivation based on 37 separate indices of deprivation, grouped into seven key domains reflecting different aspects of deprivation.
LCA	**Landscape Character Assessment** The process of identifying and describing variation in character of the landscape, the assessment identifies and explains the unique combination of elements and features that make landscapes distinctive by mapping and describing character types and areas.
LFRMS	**Local Flood Risk Management Strategy** Strategies produced by lead local flood authorities, considering local issues and policy. It should also consider the extent and severity of flood risk and the geography of the authority area including the environmental or social setting.
LGeoS	**Local Geological Site** Geological sites that are important for historical, scientific research or educational reasons.
LLFA	**Lead Local Flood Authority** County councils and Unitary Authorities which lead in managing local flood risks.
LNR	**Local Nature Reserve** Local Nature Reserve are statutory designation under the National Parks and Access to Countryside Act 1949. These can be declared by Parish and Town Councils, but these must be delegated to by principle local authority.
LSOA	**Lower Layer Super Output Area** Lower Layer Super Output Area are areas of population household minimum and maximum thresholds. These areas were designed to improve the reporting of small area statistics.
NCA	**National Character Area** National Character Area is a natural subdivision of England based on a unique sense of place. The Character Area framework is used to describe and shape objectives for the countryside, its planning and management.
NFM	**Natural Flood Management** The utilisation of natural processes to reduce the risk of flooding and coastal erosion
NNR	**National Nature Reserve** Reserves established to protect some of our most important habitats, species, and geology, and to provide outdoor laboratories for research.
NPPF	**National Planning Policy Framework** The National Planning Policy Framework constitutes all policy statements and guidance documents into one document which forms a core part of the national planning system.
ODPM	**Office of the Deputy Prime Minister**

	Central department to bring together key responsibilities for regional and local government, fire, housing, planning and regeneration, social exclusion, and neighbourhood renewal.
ONS	**Office of National Statistics** The Office for National Statistics is the executive office of the UK Statistics Authority, a non-ministerial department which reports directly to the UK Parliament.
RBMP	**River Basin Management Plan** River basin management plans set the locally specific environmental objectives that underpin water regulation (such as permitting) and planning activities.
RIGS	**Regionally Important Geological Sites** Regionally Important Geological Sites are designated by locally developed criteria, and are important educational, historical, and recreational resources. The designation aims to recognise and protect earth science and landscape features.
SAC	**Special Area of Conservation** Special Areas of Conservation are protected in the UK under, the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales. The purpose of this designation is to conserve the habitat and species identified in the EU Habitats Directive.
SEA	**Strategic Environmental Assessment** Strategic Environmental Assessment is a decision support process which aims to promote sustainable development by assessing the extent to which the emerging plan will help achieve relevant environmental, economic, and social objectives.
SPA	**Special Protection Areas** Special Protection Area are protected areas are protected areas for birds in the UK, under the Wildlife & Countryside Act 1981 and the Conservation Regulations 2010.
SPZ	**Source Protection Zones** Areas defined around large and public potable groundwater abstraction sites, to provide additional protection to safeguard drinking water though constraining the proximity of an activity that may impact upon a drinking water abstraction.
SSSI	**Sites of Special Scientific Interest** Sites of Special Scientific Interest is a conservation designation legally protected under the Wildlife and Countryside Act 1981 (as amended). These sites are selected for wildlife and natural features in England.
SuDS	**Sustainable Drainage Systems** Drainage solutions that provide an alternative to the direct channelling of surface water through networks of pipes and sewers to nearby watercourses.
SWMP	**Surface Water Management Plan** A plan which outlines the preferred surface water management strategy in each location. In this context surface water flooding describes flooding from sewers, drawings, groundwater and runoff from land small water course and ditches that occurs because of heavy rainfall.
WFD	**Water Framework Directive** The Water Framework Directive is a European Union directive which aims to get polluted waters clean again, and ensure they stay clean.
WRMP	**Water Resources Management Plan** Plan developed by water companies which sets out how they intend to achieve a secure supply of water for customers and protect and enhance the environment.

Non-technical summary:

Introduction

A detailed Local Flood Risk Management Strategy (LFRMS) is being developed for Leicestershire County Council (LCC) to replace the existing LFRMS published in 2015, encompassing the risks associated with local flood risk sources, as stipulated by Section 9 of the Flood and Water Management Act 2010.

The following Non-Technical Summary outlines the conclusions of the Strategic Environmental Assessment (SEA) undertaken as part of the review of Leicestershire County Council's (LFRMS), fulfilling the requirements of the SEA Regulations.

Purpose of this assessment

When preparing a LFRMS, it is a statutory requirement to carry out a SEA to identify any potentially significant environmental effects arising from the implementation of the strategy. SEA is an integrated, systematic appraisal of the potential environmental impacts of policies, plans, strategies and programmes during their development before they are approved; ensuring that implications for the environment have been fully and transparently considered. It considers a range of environmental issues including biodiversity, population, human health, flora and fauna, soils, water, air, climate, material assets, heritage, landscape and the interactions between these factors.

A SEA of the LFRMS has been undertaken in order to identify any potentially significant environmental effects arising as a result of the implementation of the measures contained within it. This document forms the Environmental Report stage of the SEA process.

Background to the Leicestershire LFRMS Review

The Flood and Water Management Act (2010) determined the need for flood risk to be managed within the framework of National Strategies for England and Wales and within Local Strategies for each Lead Local Flood Authority Area (LLFA).

The National Flood and Coastal Erosion Risk Management Strategy for England, published by the Environment Agency in 2020, sets out the principles for flood risk management and which organisations are responsible for their implementation.

In accordance with the national strategy for England, LLFAs have been allocated responsibility for developing independent LFRMSs to address sources of local flooding (defined as surface runoff, groundwater and ordinary watercourses).

Leicestershire's first LFRMS was adopted in 2015; since this document was produced, knowledge of the broad nature and extent of flood risk across Leicestershire has grown. It was determined that the 2015 LFRMS should be revised to facilitate continued statutory compliance, improved action planning and partnership working, improved resource efficiency and support for funding applications, and improved community understanding and engagement to facilitate management of flood risk within Leicestershire.

Summary of the Strategic Environmental Assessment Process

SEA is a staged process, which ensures that the potential environmental effects of a policy or plan are identified during the development of the plan. It provides a framework through which to consult upon the potential environmental effects of the LFRMS and to amend the LFRMS prior to its adoption. The stages of SEA can be summarised as follows:

- Stage A: Setting the context, establishing the baseline and deciding on the scope of the assessment. A Scoping Report is produced at this stage.
- Stage B: Developing and refining options and assessing effects
- Stage C: Preparing the Environmental Report
- Stage D: Consulting on the draft plan
- Stage E: Monitoring significant effects of implementing the plan.

The first stage of the SEA process involved the preparation of a Scoping Report for consultation (October/November 2022). The Scoping Report identified key plans, policies and programmes of relevance to the strategy. It also set out the baseline environmental characteristics and key issues. The Scoping Report identified key environmental topics that needed to be assessed in the SEA, and scoped out issues where significant effects were not anticipated.

The Scoping Report was finalised following consultation and after this, Stage B commenced including developing and refining options and assessing effects. This Environmental Report has been prepared as Stage C. A draft Environmental Report was issued for consultation alongside a draft LFRMS (in January/February 2023). This Environmental Report captures comments received and updates made to the LFRMS.

Developing the SEA Framework

The SEA framework is made up of a number of SEA objectives which are used to test the objectives, policies and options of the LFRMS. The SEA objectives were identified based on the findings of the Scoping Report, including baseline environmental characteristics and other plans, policies and programmes of relevance. The SEA objectives are outlined in Table 1 below:

Table 1: SEA objectives

Receptor	Objective
Landscape and Visual Amenity	Protect the integrity of local urban and rural landscapes in the area.
Biodiversity, Flora and Fauna	Maintain, enhance and extend biodiversity, wildlife and habitat connectivity.
Water Environment	Protect and enhance the quality of water features and resources.
Geology and soils	Maintain soil quality and conserve geological designations.
Historic Environment	Preserve and where possible, enhance important heritage assets.
Population and Human Health	Protect and enhance human health and wellbeing.
Material assets	Minimise the impacts of flooding to the transport network and key critical infrastructure
Material assets	Minimise local and national contribution to climate change.

SEA Assessment

The LFRMS was developed including a series of overarching principles, objectives and actions. The objectives and measures contained within the action plan were subject to the SEA appraisal process.

Three alternative management processes and their associated likely environmental impacts were assessed including: Do Nothing, Maintaining the Current Leicestershire County Council Local Flood Risk Strategy (2015), and Manage and Reduce Local Flood Risk. It was determined that the development of a new LFRMS was the only realistic option for managing flood risk in Leicestershire.

The objectives and actions as set out in the LFRMS were fully assessed against the SEA objectives to identify aspects of the strategy that may require revising as a result of potential impacts identified. Colour coding was used to outline likely impacts, to present a clear overview of the assessment findings. This colour coding reflected likely impact significance, as per Table 2 below:

Table 2: SEA Impact Significance Framework

Symbol	Explanation of Effect
++	Significant positive impact – significantly beneficial to the SEA objective. Multiple opportunities for environmental improvement or potential to resolve existing environmental issue.
+	Minor positive impact – partially beneficial (not significant) to the SEA objectives. Contributes to resolving an existing environmental issue or offers some opportunity for improvement.
O	Neutral effect on the SEA objective and environment.
-	Minor negative impact – partially undermines (not significantly) the SEA objective. Would contribute to an environmental issue or reduce opportunities for improvement.
--	Significant negative impact – significantly undermines the SEA objective. Will significantly contribute to an environmental problem or undermine opportunity for improvement.
?	Uncertain impact – insufficient detail on the option or baseline. Cannot effectively assess the significance of the strategy on the SEA objective.

Summary of SEA findings

The result of the assessment concluded that the LFRMS will likely have direct positive effects on the SEA objectives, relating to Population and Human Health and Material Assets. There is also opportunity for the LFRMS actions to contribute positively to other SEA objectives, including: landscape and visual amenity; biodiversity flora and fauna; water environment; soils and geology and historic environment.

There is some uncertainty regarding the scale and location of some of these positive effects. Sometimes this is because for some measures the scale, location and/or process of implementation is currently unclear, also, some indirect positive effects may be outside the control of the organisations delivering measures. However, positive effects are generally likely across the implementation of the strategy, across a wider range of the SEA objectives.

The assessment also suggests mitigation should be implemented to avoid any potential adverse effects to SEA objectives resulting from the development of flood alleviation

schemes. It also suggests opportunities to better meet objectives relating to carbon reduction should be promoted.

From the assessment, no potential negative effects on any of the SEA objectives were identified from any of the LFRMS objectives or actions at this stage.

Proposed monitoring

This Environmental Report provides some suggested monitoring measures for each SA/SEA objective. These simple, effective and measurable indicators will aid the future monitoring of the plan.

Concluding statement

The LFRMS has been developed and informed by a clear evidence base of baseline environmental data and complies with relevant national and local planning policy.

The SEA did not identify any significant negative effects of the LFRMS. Many of the proposed measures detailed in the LFRMS have the potential for direct and indirect benefits. The majority of the LFRMS objectives are likely to have indirect beneficial effects upon the environment as they relate to enhanced understanding and awareness of flood risk along with high-level flood risk management measures rather than individual actions. The assessment of the LFRMS objectives and actions against the SEA objectives highlights positive impacts, especially on SEA objectives 6 and 7. By actively managing the flood risk, there will be obvious benefits to the population, human health and material assets. Through promoting a greater understanding of flood risk, encouraging community involvement and promoting self-resilience as well as a coordinated county-wide flood risk management approach, communities and responsible parties will be better placed to effectively minimise the risk of flooding in the Leicestershire area.

1 Introduction

1.1 Overview

Leicestershire County Council as Lead Local Flood Authority (LLFA) is working to produce a Local Flood Risk Management Strategy (LFRMS) under the Flood and Water Management Act 2010. The current LFRMS, which was adopted in 2015, has been reviewed and is being updated to provide an overall strategic approach to the management of flood risk in Leicestershire.

The aim of a LFRMS is to guide the management of local flood risk, reflecting local circumstances such as the level of risk and the potential impacts of flooding. Leicestershire's updated LFRMS must assess local flood risk, set out measures for managing local flooding and determine the costs and benefits associated with the implementation of such measures.

When preparing a flood management plan that will inform decision making and identify actions to be taken to reduce the risk of flooding, it is a statutory requirement to conduct a Strategic Environmental Assessment (SEA) in accordance with the SEA Regulations (implementing the European SEA Directive into UK law).

Due to the scale of the changes proposed in the updated LFRMS and the potential for significant environmental effects, it was considered appropriate that an update to the SEA be undertaken.

The SEA process, culminating in the preparation of this Environmental Report, will inform the preferred long-term flood risk management Strategy through the identification of likely significant impacts upon the environment, resulting from the implementation of the LFRMS.

This SEA Environmental Report will outline how objectives, measures and options have been appraised.

2 SEA Process and Methodology

The Environmental Assessment of Plans and Programmes Regulations 2004, or SEA Regulations, were originally transposed from the European Directive 2001/42/EC (the SEA Directive) into English Law, prior to the UK's departure from the EU. The Environmental Assessment of Plans and Programmes (Amendment) Regulations 2020 (the 'SEA Regulations') now apply to this work. These Regulations require a SEA to be undertaken for certain types of plans or programmes that could have a significant environmental effect.

The SEA Regulations form the basis by which all SEAs are carried out to assess the effects and impacts of certain plans and programmes on the environment. Detailed practical guidance on these regulations can be found in the Office of the Deputy Prime Minister (ODPM) Government publication, A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, 2005). This document has been used as the basis for undertaking this environmental report, in conjunction with the SEA Regulations.

SEA involves the systematic identification and evaluation of the potential environmental impacts of the LFRMS. This information is then used to aid the selection of a preferred option(s) for the strategy, which are those that best meet its economic, environmental and social objectives, and legal requirements. Carrying out an SEA in conjunction with developing the LFRMS helps influence flood risk management at an early stage, and influences the selection of preferred measures or ways forward where alternatives exist.

Schedule 2 of the SEA Regulations sets out the scope of information to be provided by the SEA. This is described in Table 2-1 below, which also identifies where in the SEA process for the LFRMS that the relevant requirement will be met.

Table 2-1 Stages in the SEA Process as Identified within Schedule 2 of the SEA Regulations

SEA Regulations Requirements	Where Covered in the SEA Process
a) an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;	SEA Scoping Report (Section 3, 4 and 5); SEA Environmental Report (Sections 3, and 5 and Appendix B).
(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	SEA Scoping Report (Section 4); SEA Environmental Report (Section 5).
(c) the environmental characteristics of areas likely to be significantly affected;	SEA Scoping Report (Section 4); Environmental Report (Section 5).
(d) any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC on the conservation of wild birds(a) (amended to 2009/147/EC and transposed into UK law through Part I of the Wildlife and Countryside Act 1981) and the Habitats Directive 92/43/EEC (transposed into UK law through the Conservation of Habitats and Species Regulations 2017 (as amended);	SEA Scoping Report (Section 4); Environmental Report (Section 5).
(e) the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	SEA Scoping Report (Sections 3 and 4); Environmental Report (Section 5 and Appendix B).
(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape, and the interrelationship between the above factors;	SEA Environmental Report (Section 8)
(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	SEA Environmental Report (Section 8)
(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	SEA Environmental Report (Section 7)
(i) a description of the measures envisaged concerning monitoring in accordance with regulation 17.	SEA Environmental Report (Section 9)

SEA Regulations Requirements	Where Covered in the SEA Process
(j) a non-technical summary of the information provided under the above headings.	SEA Environmental Report (Non-technical Summary)

2.1 Stages in the SEA Process

This report has been produced in conjunction with the SEA Regulations and follows the guidance contained within the OPDM *A Practical Guide to the Strategic Environmental Assessment Directive* (ODPM, 2005). The guidance outlines the stages that should be carried out in the SEA process; these are outlined in Table 2-2. In accordance with this process, this report addresses 'Stage C' of the SEA process; wherein the predicted environmental effects of the plan, including alternatives, are presented, to be used by decision-makers and in public consultation. This Environmental Report has subsequently been updated following comments received during the consultation process (Stage D).

Table 2-2 Stages in the SEA Process

SEA Stages and Tasks	Purpose	Where Covered in the SEA
Stage A	Setting the context and objectives, establishing the baseline, and deciding on the scope	SEA Scoping Report
(A1) Identifying other relevant plans, programmes and environmental protection objectives	To establish how the plan or programme is affected by outside factors, to suggest ideas for how any constraints can be addressed and to help to identify SEA objectives.	SEA Scoping Report
(A2) Collecting baseline information	To provide an evidence base for environmental problems, prediction of effects, and monitoring; to help in the development of SEA objectives.	SEA Scoping Report
(A3) Identifying potential environmental problems	To help focus the SEA and streamline the subsequent problems, prediction of effects, and monitoring; to help in the development of SEA objectives.	SEA Scoping Report
(A4) Developing SEA objectives	To provide a means by which the environmental performance of the plan or programme and alternatives can be assessed.	SEA Scoping Report
Stage B	Developing and refining options and assessing effects	Options development phase
Stage C	**Preparing the Environmental Report**	**SEA Environmental Report**

SEA Stages and Tasks	Purpose	Where Covered in the SEA
Stage D	**Consulting on the draft LFRMS and the Environmental Report**	**Consultation phase**
Stage E	Monitoring the significant effects of implementing the LFRMS	Monitoring phase

Stage A of the process (scoping) was carried out in October 2022 and a SEA Scoping Report was submitted for consultation in November 2022. An updated Scoping Report was then produced in November 2022 to incorporate responses from statutory consultees. Further details on the scoping process are provided in Section 4 of this report.

The purpose of this Environmental Report is to report the findings of the SEA of the Leicestershire LFRMS. This Environmental Report summarises;

- how the SEA has been conducted and how it informs the current emerging LFRMS;
- the likely significant effects on the emerging LFRMS on people, communities, the economy and the environment; and
- how the SEA will continue to inform the implementation of the emerging LFRMS, such as through recommended mitigation and monitoring.

This report documents Stage B of the SEA process and fulfils the requirements of Stages C and D.

2.2 Habitats Regulations Assessment (HRA)

Due to the potential for the LFRMS to have significant effects on sites of international nature conservation importance (Ramsar sites, Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), a Habitats Regulations Assessment (HRA) has been undertaken in parallel with this SEA. This has been produced a separate standalone report, details of which are summarised in Section 5.3.3 of this report.

3 Background to the Leicestershire LFRMS

3.1 Overview

The Flood and Water Management Act (2010) determined the need for flood risk to be managed within the framework of National Strategies for England and Wales and within Local Strategies for each Local Flood Authority Area.

The National Flood and Coastal Erosion Risk Management Strategy for England, published by the Environment Agency in 2020, sets out the principles for flood risk management and which organisations are responsible for implementation.

In accordance with the national strategy for England, LLFAs have been allocated responsibility for developing independent LFRMSs to address sources of local flooding.

Local flooding is defined by the Flood and Water Management Act 2010 as flood risk derived from:

- surface runoff,
- groundwater, and
- ordinary watercourses.

Surface water flooding often occurs where drainage systems (natural and/or artificial) are unable to cope with the volume of water. Surface water flooding issues are linked to issues of poor drainage (or drainage blocked by debris) and sewer flooding.

Surface water is one of the primary flood risks in Leicestershire and there has been widescale surface water flooding across the area (LCC, 2017).

Groundwater flooding occurs when the water table within the underlying rock or soil rises above ground level or interacts with properties or infrastructure below ground level. The level of the table varies as a result of seasonal changes in precipitation, recharge, and groundwater abstraction. When the water level reaches ground level, water can start to emerge causing flooding, which can result in significant property damage.

Flooding from ordinary watercourses occurs when water levels in a non-main river, canal, sewer, lake, ditch, reservoir or stream rises and overflows onto the neighbouring land.

Flood risk from the sea, main rivers and large reservoirs is therefore not defined as local flood risk and is the concern of the Environment Agency. Such sources of flood risk do, however, need to be considered insofar as they may interact with those flood risks defined as "local", to ensure that all joint risks of flooding are assessed at the local scale.

Each LFRMS identifies which local organisation is accountable for managing flood risk and establishes roles and responsibilities and partnership agreements, as well as undertaking an assessment of flood risk and developing plans / actions for tackling these risks.

As stipulated by the Flood and Water Management Act 2010, Leicestershire County Council as a LLFA has a responsibility to develop, maintain, apply and monitor a strategy for local flood risk management, considering flood risk from surface water, groundwater and ordinary watercourse.

3.2 LFRMS Updates

Leicestershire's first LFRMS was adopted in 2015. Since this document was produced, the knowledge of the broad nature and extent of flood risk across Leicestershire has grown.

In Section 9 "Monitoring and Review" of the LFRMS it stated that 'the review triggers will be discussed with the Flood Risk Management Board (FRMB) and a decision made as to whether the strategy requires a full or partial review'. A discussion was undertaken and subsequently it was determined that a full review and update of the LFRMS was necessary. This is due to increased knowledge and understanding of the nature and extent of flood risk across Leicestershire, to ensure national strategy consistency, by recommendation of Scrutiny and to increase public engagement.

On this basis, it was determined that the 2015 LFRMS should be revised to facilitate continued statutory compliance, improved action planning and partnership working, improved resource efficiency and support for funding applications, and improved community understanding and engagement to facilitate management of flood risk within Leicestershire.

In order to achieve this, LCC has identified five overarching principles for the strategy:

- Organisational partnership working.
- Working with communities.
- Delivering multiple benefits.
- Adapting to climate change.
- Taking a risk based approach.

These overarching principles have informed a framework of objectives and "measures".

The objectives of the draft strategy are:

1. To manage local flood risk through the effective management of flood risk assets, watercourses, and catchments.
2. To endeavour to manage local flood risk through supporting and encouraging sustainable development.

3. To manage local flood risk through effective preparedness, response to, and recovery from flood events.
4. To better understand local flood risk and impacts, informing approaches to managing this risk.

"Measures" proposed at this stage (in accordance with the Flood and Water Management Act) for achieving the LFRMS objectives are procedures and general approaches to how flood risk will be managed across Leicestershire, including how LCC and its partner organisations can work together to investigate and manage flooding issues now and in the future. This includes, for example, the coordination and monitoring of a multi-agency local flood risk communications and engagement plan for Leicestershire.

3.3 Study Area

The study area for the LFRMS is within the administrative boundary of LCC.

Leicestershire is a non-metropolitan county, located in the East Midlands, England (see Figure 3-1). The area consists of the following local authorities:

- Blaby District Council;
- Charnwood Borough Council;
- Harborough District Council;
- Hinckley and Bosworth Borough Council;
- Melton Borough Council;
- North West Leicestershire District Council; and
- Oadby and Wigston Borough Council.

The City of Leicester is located at its centre but is administered separately from Leicestershire County Council's local authorities, therefore it is not covered within this LFRMS.

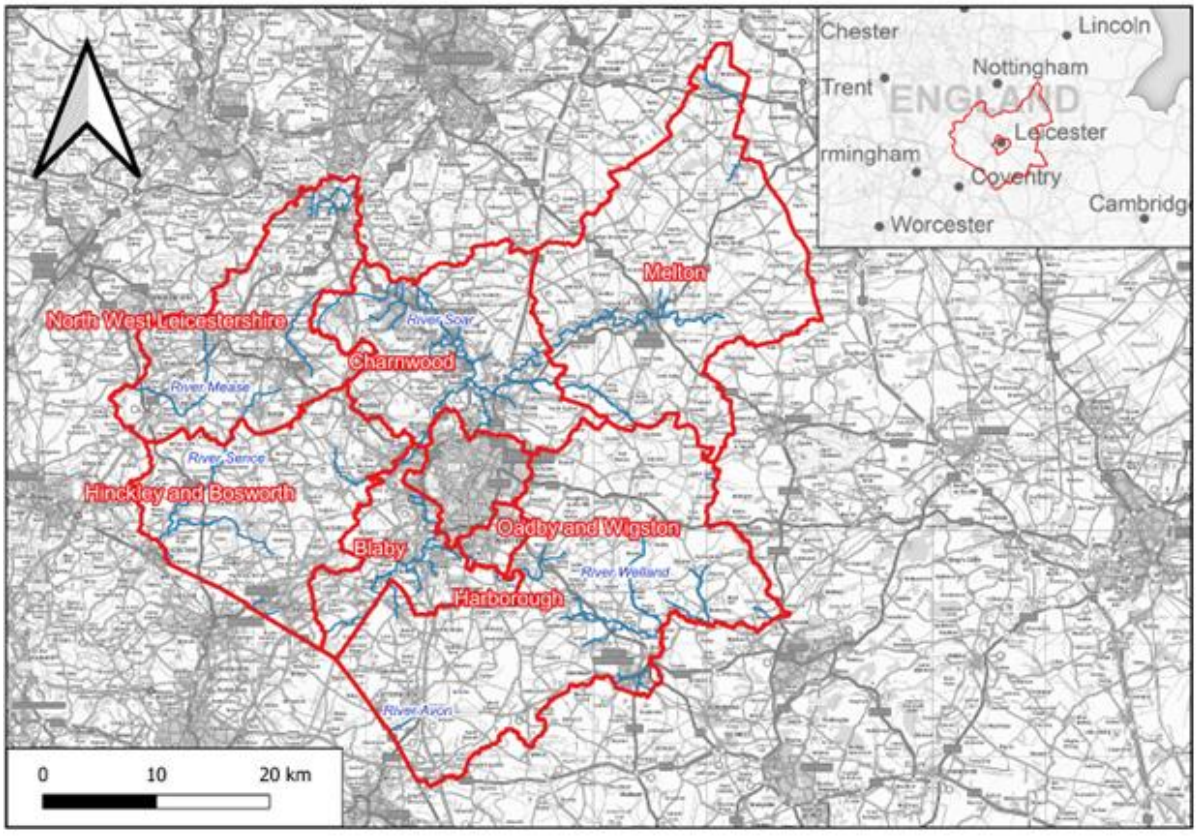

Figure 3-1 Leicestershire County Council Location

3.4 Historic flooding in the Study Area

There have been several recorded flood incidents across Leicestershire from a combination of sources.

According to past flooding records (LCC, 2017), flooding events in Leicestershire prior to 2017 have been predominantly characterised as flash floods, with several natural floods also recorded. Flash floods are characterised by an immediate increase in peak flows, a steeper rising limb, and a shorter duration. Notable and more severe flood events to affect the county include the 1947 and Easter 1998 flood events. Several rural settlements have also been affected by the December 1999, 2000, summer 2007, January 2008 and November 2012 flood events. Communities which have experienced frequent flooding include Market Harborough, Melton Mowbray, Great Glen, Burton Overy and Anstey. Several sources of flooding have been identified across the county and include: fluvial; surface water; sewer; and flood incidents associated with water infrastructure issues such as culvert blockages or insufficient capacity in the sewer network.

During 2012 and 2013, there were several flash flood events localised to Loughborough (LCC, 2014a) and Market Harborough (LCC, 2014b) with the most significant of which recording structural damage to five properties in The Square, Market Harborough. In 2016, a significant flood event occurred in Whitwick and Thringstone (LCC, 2021a). Flooding occurred over two days, with probability estimated to be between a 1-in-20 and 1-in-50 rainfall events. Various sources are thought to have contributed, primarily natural exceedance of Main River, sewer and highway drainage and surface runoff from surrounding land resulting in flash floods.

Between June 2019 and February 2020, Leicestershire received significantly higher than average rainfall which led to a number of severe flooding events.

Multiple flood incidents have occurred in the Appleby Magna area during the periods of November 2019 and February 2020. These events resulted in the ingress of storm flood water to 16 residential properties and external flooding to 25 additional properties. As a result of intense rainfall onto an already waterlogged catchment, the local drainage highway, and public sewer networks were rapidly inundated, overwhelmed and surcharged. This caused high volumes or surface water to enter the Meadow Brook (also known locally as 'Appleby Brook') which quickly overwhelmed the brook's capacity and caused extensive fluvial and foul water flooding which subsequently entered residential properties (LCC, 2021b).

Under Section 19 of the Flood and Water Management Act, Leicestershire County Council, in their role as the LLFA, publish investigation reports detailing severe flooding events.

Since 2017, Leicestershire County Council have published reports covering the following communities and events:

- Thornborough Road, Coalville – December 2017;
- Watling Street, Hinckley – December 2017;
- Paterson Place, Shepshed – April 2018
- Loughborough Road, Mountsorrel – July 2019;
- Main Street, Leire – July 2019;
- Main Street, Cossington – October 2019;
- Stoney Stanton – October 2019;
- Barrs Way, Mountsorrel – October 2019;
- Bramcote Road, Loughborough – October 2019;
- West End, Long Whatton – November 2019;
- Appleby Magna – November 2019 and February 2020;
- Buckthorn Way, Great Glen – December 2019;

- Redmile village – February 2020;
- Newtown Linford – June 2020.

3.5 Future flood risk

There is considerable uncertainty regarding the localised impact of climate change, but it is likely that the risk of flooding will increase under current climate change scenarios.

The climate in the UK is generally anticipated to shift towards warmer, wetter winters and hotter, drier summers (Met Office, 2022). Climate change is increasing the frequency and magnitude of hazardous weather events such as flood and heatwaves.

A review of recent evidence of the anthropogenic intensification of short-duration rainfall extremes concluded that heavy rainfall extremes are intensifying (Fowler et al. 2021). Combined with warmer, generally drier summers, the harder ground struggles to instantly absorb water from rainfall – which in turn intensified the frequency of flash flooding (Met Office, 2022).

This increased risk could manifest itself as more frequent flooding, increase in flood extent and increase in flood depth.

4 Stage A: Scoping Stage Findings

Stage A of the SEA process involves gathering evidence to help set the context and objectives, establish the environmental baseline and determine the scope of the SEA.

The Scoping Report produced as part of Stage A outlined the findings of the evidence gathering and the scope of the SEA.

Table 4-1 below describes the SEA topics which were scoped into the assessment. Further details on the environmental baseline for each of the topics is provided in Section 5: Environmental Characteristics and Key Issues.

Table 4-1 Environmental Topics Scoped in

SEA Regulations Requirements	Definition in relation to this report	Relevance
Biodiversity (including flora and fauna)	Designated nature conservation sites; protected and notable species and habitats; trends in condition and status; invasive non-native species (INNS).	Potential impact on designated and priority habitats both from the LFRMS and a scenario without it. There is the potential for both positive and negative impacts as a result of the LFRMS. Potential impacts to protected species and sites must be considered throughout development and implementation of the LFRMS.
Climatic factors	As the LFRMS is a flood risk strategy, this topic will focus on greenhouse gas emissions. Flood risk and adaptation to climate change will be assessed under each of the other SEA topics.	Scope to include greenhouse gas emissions only (e.g. embodied carbon and emissions from plant and vehicles). The impact of climate change on flood risk will be considered as part of the LFRMS itself. In addition, the LFRMS is unlikely to have a significant impact on climate.
Cultural heritage	Designated and non-designated heritage assets, including historic landscapes; pressures on heritage assets (including changes to setting).	Flooding and flood risk management measures have the potential to impact sites and monuments of archaeological and historical importance, including listed buildings and Scheduled Monuments.
Human health	Trends and patterns in human health, including life expectancy.	People, properties and settlements potentially affected by flood risk, as well as the community infrastructure around them. The LFRMS has the potential to provide benefits to the population of the study area by managing flood risk.
Landscape	National and local landscape character; protected and notable landscapes; key local landscape features.	Local landscape qualities and integrity across the study area could be affected by changes to the way watercourses and flood risk is managed in the area. Furthermore, impacts on locally important urban and rural landscapes and landscape features may occur, for example as a result of flood defence construction.
Material assets	Critical infrastructure (including transport and other	The study area contains several important infrastructure assets including motorways and railways. Flooding may compromise the

SEA Regulations Requirements	Definition in relation to this report	Relevance
	infrastructure), community services; and Green Infrastructure	function of these assets and the LFRMS must take this into account.
Population	Population trends and demographics; education; inequality and deprivation; key community facilities; recreation opportunities; trends and patterns in human health.	People, properties and settlements potentially affected by flood risk, as well as the community infrastructure around them. The LFRMS has the potential to provide benefits to the population of the study area by managing flood risk.
Soil	Variety of rocks, minerals and landforms; the quantity and distribution of agricultural land including the highest quality soils; soil health and functions; designated geological sites; land contamination.	Flooding has the potential to affect geodiversity and soil quality, which support designated sites within the area. Flood risk management of potentially contaminating land uses or sources of land (or water) contamination. Conversely, flooding may provide a beneficial effect through mitigation such as natural flood management processes, catchment sensitive farming and soil erosion reduction.
Water	The availability/supply and quality of water. It considers in turn surface and groundwater resources, chemical and biological water quality; surface and groundwater resources.	Flood risk management has the potential to impact on water availability and quality within the study area and WFD objectives. There is also the potential for indirect impacts on water dependent designated sites/ species. Impact on water resources and quality must be considered in developing the strategy. Effects on flood risk have not been considered as an explicit theme or topic within the SEA.
Interrelationship between the above factors	The relationship between environmental features and issues	The effect of known proposals/commitments.

The LFRMS and SEA have been influenced by many different plans and programmes. This is recognised by the SEA Regulations, which require a review of relevant plans and programmes to be completed in the preparation of documents.

Key international, national, regional and local documents were reviewed as part of the SEA Scoping stage. The full review can be found in Appendix B. The review process has provided a valuable source of information and a framework for developing different components of the LFRMS and SEA. In particular:

- At a high level, key legislation and national policies provided the planning context for the LFRMS; and
- Regional and local documents provided a valuable source of baseline information and identified local priorities and objectives as well as conditions that the LFRMS and SEA should adhere to'.

As part of the SEA process, an assessment of the integration of existing policies, plans and programmes on the LFRMS has been undertaken. This is required under Schedule 1 of the SEA Regulations:

a) 'the degree to which the plan or programme sets a framework for projects and other activities either with regard to the location, nature, size and operating conditions or by allocating resources.

b) The degree to which the plan or programme influences other plans and programmes including those in a hierarch;

c) The relevance of the plan or programme for the integration of environmental considerations in particular with a view to promoting sustainable development.

5 Environmental Characteristics and Key Issues

5.1 Introduction

A desk-based study for baseline environmental data was undertaken to identify the key environmental characteristics within the Leicestershire County Council area. This section presents a summary of the findings of the desk-based study in topic specific sections, as detailed in the SEA Scoping Report.

The baseline information may require updating throughout the duration of the SEA process as the LFRMS is developed further and new information becomes available.

5.2 Landscape and Visual Amenity

The primary use of the Leicestershire landscape is agriculture, with arable cultivation dominating. As outlined by Natural England, the Leicestershire County Council area encompasses a number of National Character Areas (NCAs), as follows:

- **NCA 48 Trent and Belvoir Vales**: characterised by undulating, rural and arable farmland, centred on the River Trent. The southern edge of the Vales is defined by the adjacent Leicestershire and Nottinghamshire Wolds NCA.
- **NCA 69 Trent Valley Washlands**: comprises the river flood plain corridors of the middle reaches of the River Trent's catchment. It is a narrow, linear and low-lying landscape, clearly delineated by higher ground. The NCA is mainly comprised of the flat flood plains and riverine gravel terraces.
- **NCA 70 Melbourne Parklands**: is a rural landscape of rolling farmland, ancient (between the ancient forests of Needwood and Charnwood) and plantation woodland. 18 Moreover, as the name suggests, a cluster of landscaped parklands with grand country houses.
- **NCA 71 Leicestershire and South Derbyshire Coalfield**: consists of a plateau with unrestricted views of shallow valleys and gentle ridges which become less pronounced in the south. The NCA borders Charnwood National Character Area in the east and to the north the Melbourne Parklands NCA. The landscape is in continuing transition – from a landscape scarred by abandoned collieries, spoil tips and clay pits to a mix of woodland and commercial developments woven into the rural landscape.
- **NCA 72 Mease/Sence Lowlands**: largely agricultural landscape centred around the rivers Mease, Sence and Anker - The area extends across Leicestershire in the east and Staffordshire in the west.
- **NCA 73 Charnwood**: This area consists of a mosaic of heathland, farmland, parkland and woodland. It is a relatively well wooded landscape, with many areas of mixed, deciduous and coniferous woodlands. The western part of Charnwood lies within The National Forest. It is situated between Coalville, Loughborough and Leicester.
- **NCA 74 Leicestershire and Nottinghamshire Wolds**: The NCA forms part of a belt of Wold landscapes formed by gently dipping Jurassic rocks which stretch from the Cotswolds to Lincolnshire. The area includes the market town of Melton Mowbray.
- **NCA 75 Kesteven Uplands**: rolling, mixed farming landscape dissected by the rivers Witham and the East and West Glen. The majority falls within Lincolnshire.
- **NCA 89 Northamptonshire Vales**: Although proportionately smaller within the county, This NCA area adjoins the Leicestershire Vales NCA to the north-west and has many similar characteristics.

- **NCA 93 High Leicestershire**: As a majority feature of the county, to the east of Leicester, this NCA rises out of the clay of the Leicestershire and Northamptonshire Vales on the western and southern sides and above the lowland plains of the Soar, Wreake and Welland valleys. This landscape of wide, rolling ridges and secluded valleys has a remote and rural character with small villages and farmsteads. The majority of the NCA is classified as rural, despite skirting the eastern edge of Leicester and Uppingham – with the A47 across the centre of the NCA.
- **NCA 94 Leicestershire Vales**: This NCA is a large, open, regular landscape composed of low-lying clay vales disrupted by an array of varied river valleys. The NCAs sense of place comes less from its overall landform and more from its dominant settlements such as nearby Leicester, which overlooks the north-east of the NCA. The northern urban area contrasts strongly with the more rural southern area where farmland is mostly found.
- **NCA 95 Northamptonshire Uplands**: This NCA is the southernmost (bordering) within the county, an area of rolling limestone hills and valleys – with several major rivers; the Cherwell, Avon, Welland, Tove, Ouse, Nene and Ise.

5.2.1 Key Issues

Local flooding has the potential to affect local landscape characteristics in Leicestershire. This includes impacts on existing character areas and on the setting of local landmarks and landscape features. The key issues relating to the landscape and visual amenity are summarised below:

- Alteration of existing landscapes due to increased flooding.
- Disturbance to existing views.

To maintain the landscape within the county, the LFRMS should consider and take account of the key issues.

5.3 Biodiversity, Flora and Fauna

5.3.1 Statutory protected sites

The Leicestershire area encompasses many high-quality environments which have been recognised through international, national and local ecological designations.

Statutory protected sites include:

- Special Areas of Conservation (SAC): designated to conserve habitats and species listed on the European Council Directive 92/43/EEC (the Habitats Directive). SACs are protected by the Conservation of Habitats and Species Regulations 2017 (as amended), and the Conservation of Offshore Marine Habitats and Species Regulations 2017;
- Sites of Special Scientific Interest (SSSI): areas which are of special interest due to its flora, fauna, geological, geomorphic, or physiographical features and are designated under the Wildlife and Countryside Act 1981 (as amended);
- National Nature Reserve (NNR): protected areas under the Wildlife & Countryside Act 1981 (as amended);
- Local Nature Reserve (LNR): declared and managed by district and county council under the National Parks and Access to the Countryside Act 1949 due to biological, geological, educational, or public interest importance; and

Non-statutory sites include Local Wildlife Sites (LWS), which are areas with a considerable nature conservation value selected due to important habitats and species within a region (JNCC 2019; The Wildlife Trusts, 2021).

There is one European designated site (National Site Network site), River Mease SAC, within the study area. The River Mease is also nationally designated as a SSSI.

Rutland Water (Special Protection Area, Ramsar Wetland & Nature Conservation Review sites:) lies 30 km east of Leicester outside of the administrative boundaries of the Leicestershire area.

Leicestershire is amongst the poorest counties in the UK for sites of recognised nature conservation value. The very best sites (Sites of Special Scientific Interest, SSSI) represent only about 1.3% of the land area. As of 2018, there are 76 SSSIs in the county. Table 5-1 below includes descriptions of national and international statutory designated sites and are derived from the relevant Natural England citations.

Table 5-1 Statutory designated sites within Leicestershire (excluding 76 SSSI's) (NE, 2022)

Site	Designation	Qualifying features
River Mease	SAC, SSSI	River Mease (23 ha) runs between Alrewas in Staffordshire and Packington in Leicestershire. The river has a nationally significant freshwater fish population of two species; the spined loach and bullhead. Freshwater white-clawed crayfish and otter are also found. The SSSI contains habitats such as riffles, pools, slacks, vegetated margins and varied amounts of bank tree cover. As well as courses of plain to montane levels with R. fluitantis.
Charnwood Lodge	NNR	Charnwood Lodge (80 ha) is an important geological site, with rocks that are amongst the oldest in England. Around 600 million years ago Charnwood was part of a volcanic island chain.
Cribbs Lodge Meadows	NNR and SSSI	Cribbs Meadow (4 ha) is an important lowland grassland site.
Muston Meadows	NNR	Muston Meadows (9 ha) is one of the finest lowland meadows in England. The meadows are rich in plant life, with 33 types of grass and over 100 other species of flowering plant. The reserve is most notable for its colony of over 10,000 green-winged orchids. *Significant features of interest include:* - Green-winged orchid, lady's bedstraw, yellow rattle, pepper saxifrage and cowslip - Great crested newt - Skylarks, meadow pipits, yellowhammers, linnets and whitethroats - Voles and bats

A high-level strategic natural capital study of Leicester and Leicestershire (LLEP, 2021) presented analyses on several ecosystem services directly derived from water and the associated environment. The study asserts that the diverse economy of Leicestershire is underpinned by benefits that flow from the area's natural capital assets and ecosystem

services, such as opportunities that might exist in managing flood risk. This includes regulation of flooding and atmospheric gases by woodlands – as seen below in Table 5-2.

Table 5-2: Annual physical and monetary flow of ecosystem services of Leicestershire county (using EA NCRAT 2021 tool)

Ecosystem Service	Annual Physical Flow	Annual Monetary Flow (£M)
Flood storage by woodlands	1.05 million m^3	0.46
Water Quality	-	1.77
Water Supply	20.71 million m^3/year	40.44
Carbon Sequestration	40,134 tCO_2	4.33

Local reports also reflect the area need for green infrastructure interventions. The Landscape Sensitivity and Green Infrastructure Study for Leicester & Leicestershire (2016) highlighted a range of GI interventions which can delivered at small sites in the study area, including:

- Tree planting;
- Transforming paved areas to 'pocket' parks;
- Habitat enhancement along river corridors;
- Opening up culverted brooks;
- Rain gardens;
- SuDS;
- Adapting maintenance of green spaces to improve biodiversity;
- Building-mounted features such as green roofs and walls; and/or
- Improve drainage for parks and green corridors.

Additional considerations for the implementation of green infrastructure are as follows:

- Planting of native species.
- The removal and treatment of invasive non-native species (INNS)
- Where appropriate, consider building floating structures such as the use of Biomatrix floating coir mats.
- Weir removal should be considered to improve fish passage, particularly for migratory species.
- Consider larger scale improvements, including the re-naturalisation of rivers and making space for water.

5.3.2 Leicester, Leicestershire and Rutland Biodiversity Action Plan (LLR BAP)

The LLR BAP identifies objectives for the conservation and enhancement of biodiversity within the Council area and describes targets and actions that will help to deliver these objectives. The plan identifies three main components for the conservation and enhancement of biodiversity within the Council area. These are:

- To promote the restoration, management and creation of BAP priority habitats;
- To promote the creation of new wildlife habitat in the wider countryside;
- To survey, monitor and promote favourable management of existing good sites through the Local Wildlife Sites system. (L&RWT, 2016).

Numerous priority species and habitats of principal importance listed in Section 41 of the Natural Environment and Rural Communities Act are known to be present in Leicestershire and are included in the LLR BAP. These are summarised in Table 5-3 and Table 5-4Table 5-4 below.

Table 5-3 Priority species of principal importance Leicestershire

Type	Species
Plants	Black Poplar
	Purple Small-Reed
	Violet Helleborine
	Wood Vetch
Invertebrates	Black Hairstreak Butterfly
	Dingy Skipper
	Grizzled Skipper
Birds	Barn Owl
	Nightingale
	Nightingale
	Sand Martin
	Swift
	Swallows
	House Martins
Mammals	Bats
	Dormouse
	Otter
	Water Vole
Invertebrates	White-clawed Crayfish

Table 5-4 Priority habitats of principal importance Leicestershire

LLR BAP Habitat
Broad-leaved woodland
Wet woodland
Lowland wood-pasture and parkland List of historic parklands
Hedgerows
Mature trees
Eutrophic standing water
Mesotrophic lakes
Floodplain wetland
Reedbed
Fast-flowing streams
Sphagnum ponds
Springs and flushes
Neutral grassland
Heath grasslands

Calcareous grassland
Roadside verges
Field margins
Rocks and built structures
Urban habitats
Broad-leaved woodland
Rivers

The LFRMS should also consider the wider UK BAP species which are not captured in the Local BAP. In particular, the following fish species should be considered:

- European Eel (Anguilla Anguilla)
- Spined Loach (Cobitis taenia)
- River Lamprey (Lampetra fluviatillis)
- Brown/ Sea Trout (Salmo trutta).

5.3.3 Habitats Regulations Assessment

Under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, a screening assessment must be carried out for any plan or project which may impact on the protected habitats or species, with a Habitats Regulations Assessment (HRA) to be undertaken if there is a possibility of a significant effect. Mitigation or avoidance measures must then be applied should the HRA determine that significant adverse effects on site integrity, in view of a site's conservation objectives, are likely. HRA screening has been undertaken to consider potential direct or indirect adverse effects on the River Mease SAC to ensure the integrity of the site is not compromised.

A HRA has been produced for the LFRMS plan. It concludes that:

- Due to the high-level and strategic nature of the objectives and measures proposed, and the lack of proposals for physical works on the ground in the vicinity of European Sites, all of the LFRMS objectives and measures can be screened out.
- Leicestershire LFRMS will not have significant effects, either alone or in-combination with other plans/strategies, on any European sites.
- As no likely significant effects have been identified, there is no need for Appropriate Assessment.

5.3.1 Key Issues

The key issues relating to ecological receptors in Leicestershire are summarised below:

- Sensitive designated sites for nature conservation, including priority habitats and species, which are at increased risk of flooding due to surface water flooding and groundwater flooding.

Many of the statutory and non-statutory designated nature conservation sites within Leicestershire are dependent on specific hydrological regimes and support water-dependent habitats and species. Flooding may introduce contaminated or nutrient enriched waters to be designated sites which could adversely import on interest features. Flooding and flood risk therefore has the potential to adversely impact upon water levels and hydrological regimes of these sites; however, some sites may also have the potential to be enhanced by the management measures within the LFRMS.

To maintain and improve existing habitats, species and ecologically designated sites, the LFRMS must consider and take account of the issues outlined above.

Often traditional flood risk management methods can result in the physical modification of water bodies. The LFRMS should consider how to implement natural flood management

methods which may deliver multiple benefits such as maintaining and restoring biodiversity whilst providing recreational green infrastructure.

5.4 Water environment

5.4.1 Watercourses

The River Soar flows northwards through the centre of the county. It crosses over the Warwickshire border between Hinckley and Lutterworth, before flowing through 'Greater' Leicester and onwards to the east of Loughborough. It continues north out of Leicestershire before meeting the River Trent in neighbouring counties Derbyshire and Nottinghamshire. The River Avon and River Welland are two other important rivers, and together form the southern boundary of the county.

Several other rivers in the area include the River Mease, River Sence, Tweed River, River Swift and River Welland. As well as rivers, the Leicester Line of the Grand Union Canal, Charnwood Forest Canal and Ashby Canal are also located within Leicestershire.

Ordinary watercourses in the area include ditches, streams and culverts that are not classified as Main River by the Environment Agency. They can include ditches that are only wet for part of the year. Ordinary watercourses are present throughout the county.

5.4.2 Water Resources

Severn Trent Water and Anglian Water are responsible for the water supply across the area. Water is obtained from reservoirs, abstractions and boreholes. Whilst the area is predominantly supplied by Severn Trent Water, small parts of Harborough and Melton are Anglian Water regions (JBA, 2017).

The Severn Trent area is classified by the Environment Agency as a seriously water-stressed area. However, Severn Trent Water anticipates a 'significant deficit will develop between supply and demand for water over the medium term unless we act'. The Water Resources Management Plan (WRMP) acknowledges the prevention of environmental deterioration. Including finding alternative means of meeting demand to protect the environment.

The WRMP also recognises climate change uncertainty as a continued risk and impact on water resources. The application of UKCP09 data reveals that all climatic scenarios point to a long-term loss of deployable output due to changing weather conditions.

The Anglian Water supply region is also identified as an area of 'serious' water stress.

5.4.3 Water Quality

The study area falls across three separate River Basin Districts; Humber, Severn and Anglian, of which the most overlap coincides with Humber. Associated management catchments are Tame Anker and Mease, Soar (the largest in Leicestershire), Welland and Avon Warwickshire. Management catchments are further broken down into operational catchments.

Associated operational catchments include Soar River, Wreake River, Welland Upper, Mease rivers, Nottinghamshire South B, Avon Rural Rivers and Lakes and Sence, Anker and Bourne Rivers and Lakes.

Table 5-5, Table 5-6 and Table 5-7 below outline the hydromorphological designation, ecological status and chemical status of WFD water bodies. These water bodies include both rivers and lakes. The results show that most water bodies in Leicestershire based operational catchments are natural, of moderate ecological status and fail in chemical status. Whilst some water bodies are partially or wholly external to the Leicestershire administrative boundary, certain hydromorphological functions may be affected by activities within Leicestershire if upper catchments are located in the area.

Table 5-5 Hydromorphological designation of water bodies within Leicestershire operational catchments

Hydromorphological Designation of Water Bodies			
Operational Catchment	**Natural**	**Artificial**	**Heavily Modified**
Mease River	3	1	0
Soar River	26	2	7
Welland Upper	10	0	0
Wreake River	16	0	0
Avon Rural Rivers and Lakes	4	0	2
Sence Anker and Bourne Rivers and Lakes	6	1	0
Total	**65**	**4**	**9**

Table 5-6 Ecological status of water bodies within Leicestershire operational catchments

Ecological Status (Water bodies) - Status or potential (2019)					
Operational Catchment	Bad	Poor	Moderate	Good	High
Mease River	0	2	1	1	0
Soar River	1	9	23	1	0
Welland Upper	0	5	3	2	0
Wreake River	0	3	13	0	0
Avon Rural Rivers and Lakes	0	1	3	2	0
Sence Anker and Bourne Rivers and Lakes	1	2	3	1	0
Total	**2**	**22**	**46**	**7**	**0**

Table 5-7 Chemical status of water bodies within Leicestershire operational catchments

Chemical status		
Operational Catchment	Fail	Good
Mease River	5	0
Soar River	35	0
Welland Upper	10	0
Wreake River	16	0
Avon Rural Rivers and Lakes	6	0
Sence Anker and Bourne Rivers and Lakes	7	0
Total	79	0

River Basin Management Plans (RBMPs) are prepared under the WFD and assess the pressure facing the water environment in River Basin Districts. The updated 2022 Anglian, Humber and Severn RBMPs identified a number of pressures on the water environment and significant water management issues.

Generally, Anglian, Humber and Severn water bodies are classified as 'moderate' ecological status. Below are specific priority river basin management issues for several catchment partnerships (as described at the RBMP District level).

- Welland – water pollution from agriculture; flood alleviation; habitat quality and hydromorphology.
- Soar – water pollution from urban and rural areas, specifically phosphates; habitat quality; and hydrology.
- Tame, Anker and Mease - diffuse pollution from urban and rural areas, habitat quality; and hydrology.

Groundwater is important for public water supply within Leicestershire. Impacts on groundwater are broadly related to land use, with agricultural areas representing a major source of nitrates. There are two main areas of Source Protection Zone (SPZ), which are located in North West Leicestershire – both are SPZ3 – which are areas around a supply source within which all the groundwater ends up at the abstraction point.

The entire area is covered by the combined Nitrate Vulnerable Zone (e.g., Soar), a designated area at risk from agricultural pollution which may lead to nitrate pollution of waters (Environment Agency, 2021).

Following the introduction of nutrient neutrality notification (2022) for the River Mease SAC, to improve nutrient levels, new development in affected areas such as Ashby de-la Zouch, Packington, Measham, Oakthorpe, Blackfordby, Norris Hill and part of Moira would have to contribute to a Developer Contribution Scheme; this begins a strategic approach to off-setting the negative effects of development – this will fund short-term projects – such as the installation of silt traps.
Prior to notification, a restoration plan for the River Mease has been produced (2012). The plan intends to provide a framework for the improvement of the River Mease SSSI/SAC for the next 20-30 years (2012-2042), with the aim being to identify river restoration or enhancement actions that can address physical modifications to the River Mease SSSI/SAC. The plan includes: determining the impacts of physical modification; developing plans for the river on a reach-by-reach basis; and identifying potential delivery mechanisms.

5.4.4 Summary of Key Issues

The key issues relating to the water environment within the study area are summarised below:

- Water quality – Whilst generally, the hydromorphological status of Leicestershire's water environment is natural, both the ecological status/potential (predominantly moderate) and chemical status/potential reveal (all fail) indicate water quality issues within the local area. For the Soar catchment, key issues causing water quality problems arise from overflows from sewage works, surface water runoff from industrial workings and the road network.
- Increased pressures on water resources – Leicestershire's water resources are not classified as 'water stressed' although action is likely to be taken to increase capacity to address future deficits driven by climate change, Water Framework Directive and population growth.

5.5 Geology and Soils

The geology of a catchment can be an important influencing factor on the way that water runs off the ground surface. This is primarily due to variations in the permeability of the surface material and bedrock stratigraphy.

The bedrock geology of Leicestershire County Council Area is composed of several predominant bedrock formations & members, including; Branscombe Mudstone Formation, Blue Lias Formation, Charmouth Mudstone Formation, Edwalton Member and the Gunthorpe Member. Almost the entire study area is designated as being Secondary A, or Secondary B aquifer, with minimal principal aquifer.

Superficial deposits in Leicestershire are primarily comprised of a terrigenous sedimentary deposit (Oadby Member – Diamicton), whilst alluvium - clay, silt sand and gravel are found

interspersed around main river channels such as the River Soar – which runs south through Leicester to Loughborough.

There are 23 confirmed locally designated geological sites (LGeoS – formerly named Regionally Important Geological and Geomorphological Sites (RIGS)) within Leicestershire as outlined below and shown in Figure 5-1 (Leicestershire and Rutland Environment Records Centre, 2022).

- West of Charnwood and southwest of Loughborough: Newhurst Quarry, Ives Head Dyke, Morley Lane Quarry, Longcliffe Quarry, Ulverscroft, South Quarry and Bucks Hill
- In close proximity of Charnwood: Mountsorrel Buddon Wood Quarry and Old quarry at Swithland Reservoir
- West of Leicester: Groby Quarries and Park Breccia at Bradgate Park.
- Proximate to Woodhouse Eaves: Windmill Hill and Forest Rock
- Within Blaby: Croft Quarry, Croft Pasture, Narborough Bog, Stoney Cove, Granitethorpe and Sapcote Quarry.
- East of Harborough: Slawston Railway Cutting, Great Merrible Wood, Sauvey Castle and Tilton Railway Cutting.
- North West Leicestershire: Acresford Quarry, Dimminsdale Mine & Quarry, Breedon Hill Quarry, King's Mills and Quarry Hill Plantation, Cloud Hill Quarry, Ogasthorpe quarry, Grace Dieu, Whitwick Quarry, Bardon Quarry, Cliffe Hill Quarry, Bradgate Home Farm Quarry and Cadeby Gravel Pit.
- Melton: Sproxton Quarry, Stonesby Quarry, Old Dalby Cutting, Gaddesby Erratic and Burrough on the Hill.

There are also 19 SSSIs that have been designated for geological importance.

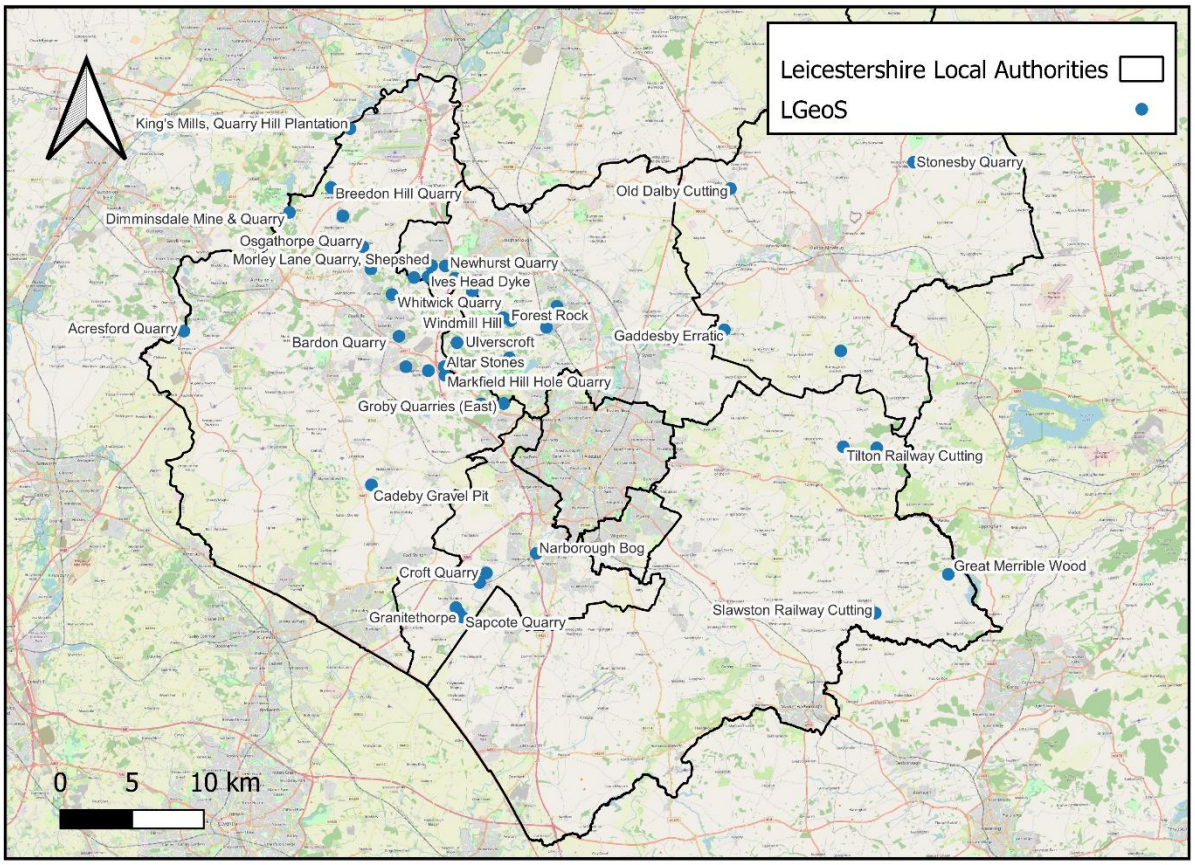

Figure 5-1 Locally Designated geological sites in Leicestershire.

Soil classifications by the Soil Landscapes Online Viewer (Defra, 2022) have classified the study area as containing multiple soil landscapes. The study area is predominantly categorised as 'Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils'. This soil landscape impedes drainage which may result in severe winter waterlogging as the result of very wet ground conditions; a possible factor of flood-risk. The land cover for this soil type is mainly grassland, arable and some woodland.

The Provisional Agricultural Land Classification (ALC) published by Natural England (2020) classifies agricultural land into five grades with grade one the best quality and grade five the poorest quality. The majority of the study area is classified as Grade 3 (good to moderate) with some scattered areas of Grade 1 and 2 (Excellent Quality Agricultural Land and Very Good Quality) surrounding Loughborough and the north of the county.

This is displayed in Figure 5-2 against flood risk zones 2 & 3. The figure displays that most of the best quality agricultural land in within close proximity to the Soar River – particularly for flood zone 3, north of Loughborough.

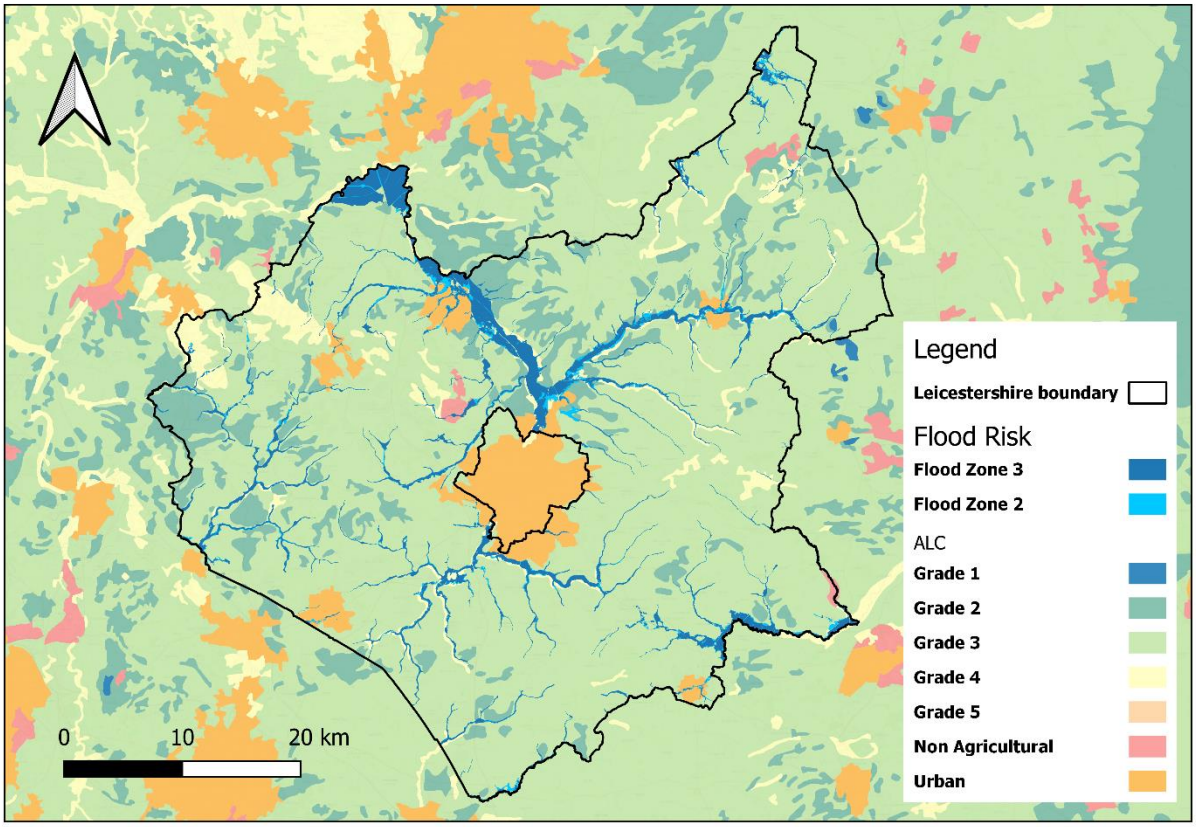

Figure 5-2: Provisional Agricultural Land Classification (ALC) against Flood Risk Zones (2/3)

Contaminated land contains substances in or under the land that are actually or potentially hazardous to health or the environment. Landfill sites are areas of potential contamination. There are 309 historic landfill sites within the study area. Figure 5-3 shows the location of these landfill sites alongside the Environment Agency Flood Zones (2 and 3).

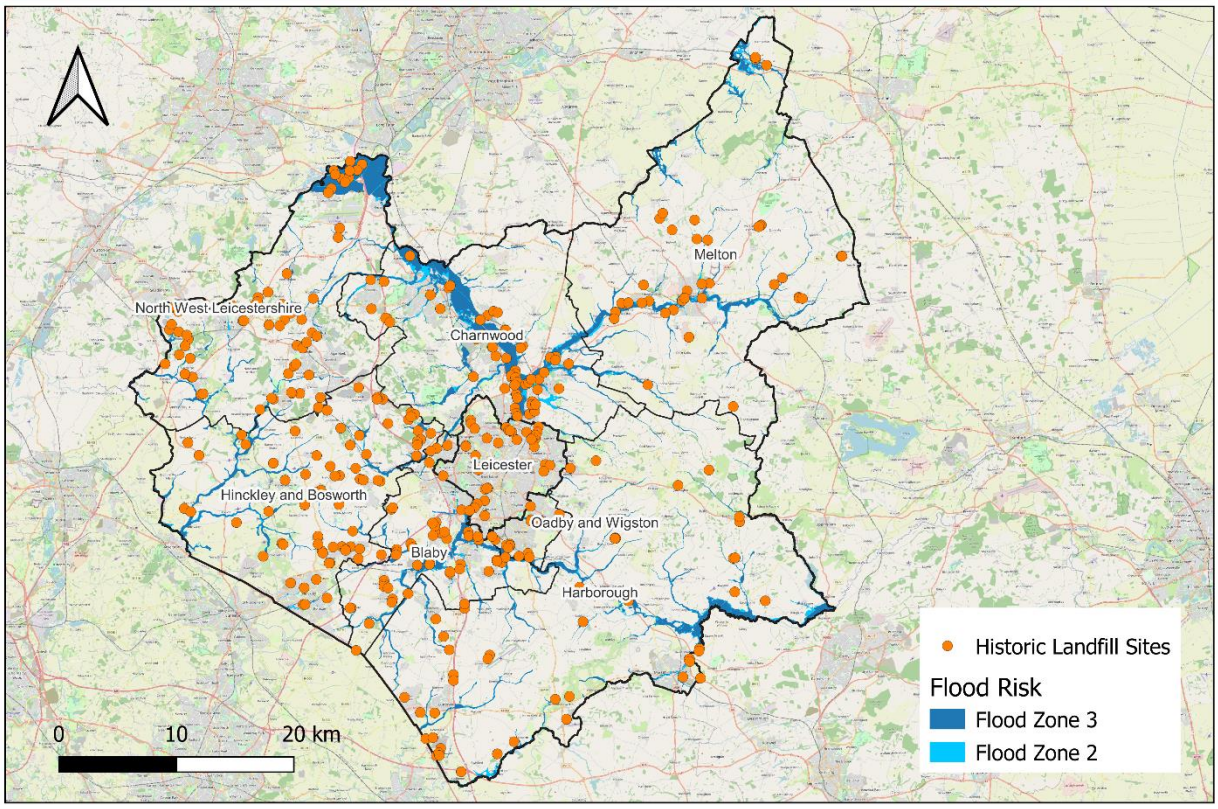

Figure 5-3: Historic Landfill Sites in Leicestershire.

5.5.1 Key Issues

The geological context of the study area, including geological designations is outline above. The key issues are summarised below:

- Local flood risk may result in contaminants leaching into surface water, increasing levels of pollution, and threatening human health and the environment; and
- Risk of damage or disturbance to geologically designated sites including LGeoS and geologically designated SSSIs.

The LFRMS must consider the issues outlined above to prevent erosion of landfill waste into watercourses which would threaten human health and the environment.

5.6 Historic Environment

There are a number of heritage assets with the study area, reflecting a rich and diverse built and historic environment.

Leicestershire contains approximately 4,031 listed buildings, 2.0% of these are Grade I listed buildings, 7.3% are Grade II* and 90.7% are Grade II listed.

Leicestershire also contains 182 scheduled monuments, these are awarded protection against potentially damaging activities, including those associated with development, under the Ancient Monuments and Archaeological Areas Act 1979. There are also 14 Registered Parks and Gardens - Grade II* (3) & Grade II (11) shown in Figure 5-4. There is one registered battlefield within Leicestershire, the Battle of Bosworth (Field) 1485, located within Hinckley and Bosworth.

The Leicestershire and Rutland Historic Environment Record (HER) provides a comprehensive gazetteer of the previously recorded heritage assets within the historic environment of the the study area. The purpose of which is to alert applicants, planning teams and other land use managers to potential impacts on heritage that would need to be addressed in line with

relevant legislation and the National Planning Policy Framework (NPPF). There is also the potential for unknown archaeological features to be present across the study area.

There are 10 assets on the Heritage at Risk Register, which are assets at risk as a result of neglect, decay or inappropriate development – or have the potential to become so. These are:

- Church of St. Margaret of Antioch - Grade II – North West Leicestershire;
- Church of St. Mary, Coleorton – Grade II* - North West Leicestershire;
- Church of St. John the Baptist - Grade II* - Melton;
- Church of St Michael, Ravenstone - Grade II* - North West Leicestershire;
- Church of St Michael and All Angels - Grade II* - North West Leicestershire;
- Church of St Mary and St Hardulph - Grade I - North West Leicestershire;
- Snibston Colliery – Scheduled Monument - North West Leicestershire;
- The Royal Hotel, Ashby-de-la-Zouch – Grade II* - North West Leicestershire; and
- Chapel of the Holy Trinity, Staunton – Grade I - North West Leicestershire.

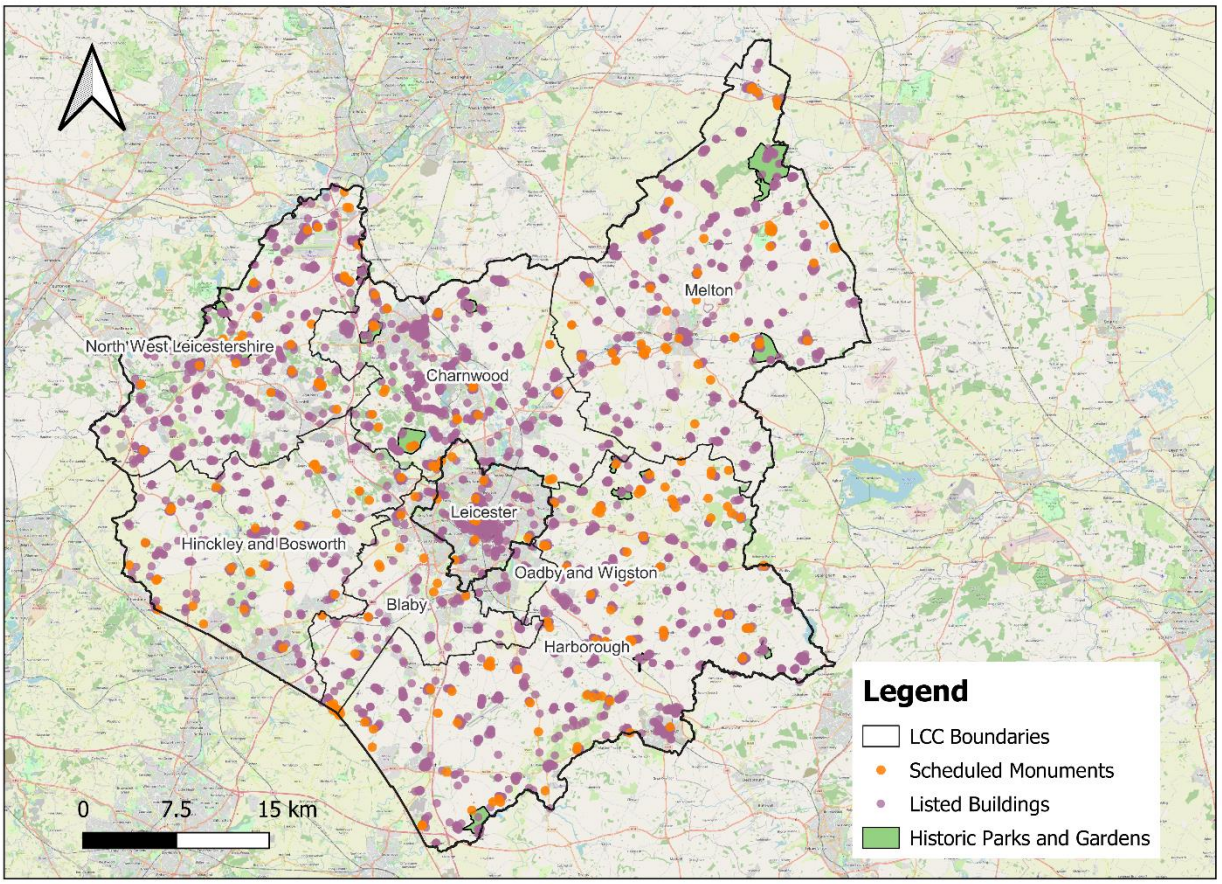

Figure 5-4 Designated heritage assets within Leicestershire

5.6.1 Key Issues

There are a variety of heritage assets present within the study area. The key issues are summarised below:

- Potential flood-related damage to many historical, cultural and archaeological features within the study area due to changed water levels or through the force and inundation of flood waters.
- Watercourses and their surrounding fluvial landscapes are important component of the historic environment, containing a wider range of heritage assets.

The provision of flood protection provided by the LFRMS must consider the potential consequences for the historic environment.

5.7 Population

The population of Leicestershire is estimated to be 712,300 (ONS, 2021) an increase of over 61,811 people from 2011 census data.

5.7.1 Health

The general health of the population of Leicestershire is slightly better than that of England and Wales as a whole. According to the Leicestershire County Council Community Insight Survey (2017-2021), 82.7% of respondents reported being in good/very good health, whilst 3.5% reported being in bad/very bad health (England and Wales: 81.2% and 5.6% respectively).

The life expectancy for women is 84.1 years of age and is higher than that for men who have a life expectancy of 80.5 years (Office for Health Improvement and Disparities, 2019). Approximately 5.3% of adult mortality (30+) in 2020 (new method) was attributable to particulate air pollution, compared to 5.1% in England.

5.7.2 Deprivation

In 2019, Leicestershire is one of the 20% least deprived counties/unitary authorities in England, however, about 10.9% (12,415) of children live in low-income families.

The Indices of Multiple Deprivation (IMD) is based on 39 criteria which cover the seven key themes of deprivation. The IMD splits each local authority into Lower Super Output Areas (LSOA) which have an average population of 1500 people or 650 households, to further breakdown and compare data.

The IMD deciles are calculated by ranking the 32,844 LSOAs in England from most to least deprived. LSOAs in decile 1 fall within the most 10% deprived of LSOAs nationally and LSOAs in decile 10 falls within the least deprived 10% of LSOAs nationally.

Leicestershire is ranked 137th out of 152 upper tier authorities in England for Multiple Deprivation, where 1st is the most deprived. Overall, IMD (2019) data reveals that the rank of proportion of LSOAs in most deprived 10% nationally for the Leicestershire is 114 (out of 130).

However, pockets of significant deprivation exist; 4 neighbourhoods in the county fall within the most deprived decile in England. These areas are found in Loughborough (Loughborough Bell Foundry and Loughborough Warwick Way - LSOAs) and 2 in the Greenhill area of Coalville.

5.7.3 Summary of Key Issues

The key issues relating to the population and health of the study area are outlined above and summarised below:

- Growing population leading to increased demand for water resources and development.
- Areas of deprivation and local flood risk exposure inequality in the area.

The provision of flood management strategies provided by the LFRMS should consider the potential consequences for the local population.

5.8 Material Assets

As outlined within the Leicestershire Local Transport Plan (2014), the County is a midlands transport hub, the major settlements in Leicester and Leicestershire are connected by a number of important A-class roads, predominantly in a radial pattern linking Leicester to the county towns in Leicestershire. Also, Leicester and Leicestershire provide proximity to the M1 granting connectivity to London.

The Plan reveals that car ownership has also increased across the County from the period of 2001-2011. The percentage of households without access to a car in Leicestershire has fallen, whilst the percentage of multiple-vehicle households has increased (particularly in rural areas of the County). Although overall bus patronage in the region has fallen – other transport modes such as cycling have seen double-digit increases (16% from 2009-2010).

Within the study area the rail network includes the Midland Main Line (running north-south between London St. Pancras and Nottingham) and other rail routes that run through, and across, Leicester and Leicestershire (The South Leicestershire Line, The Syston & Peterborough Line and The Leicester & Burton Line).

The area is also served by one airport nearby – the East Midlands Airport, which lies in the north of the County - and is one of the UK's major freight airports. Additionally, the airport has one of the largest catchment areas of any airport in the UK, with 10.6 million people living within a ninety-minute drive.

Key assets are shown on Figure 5-5.

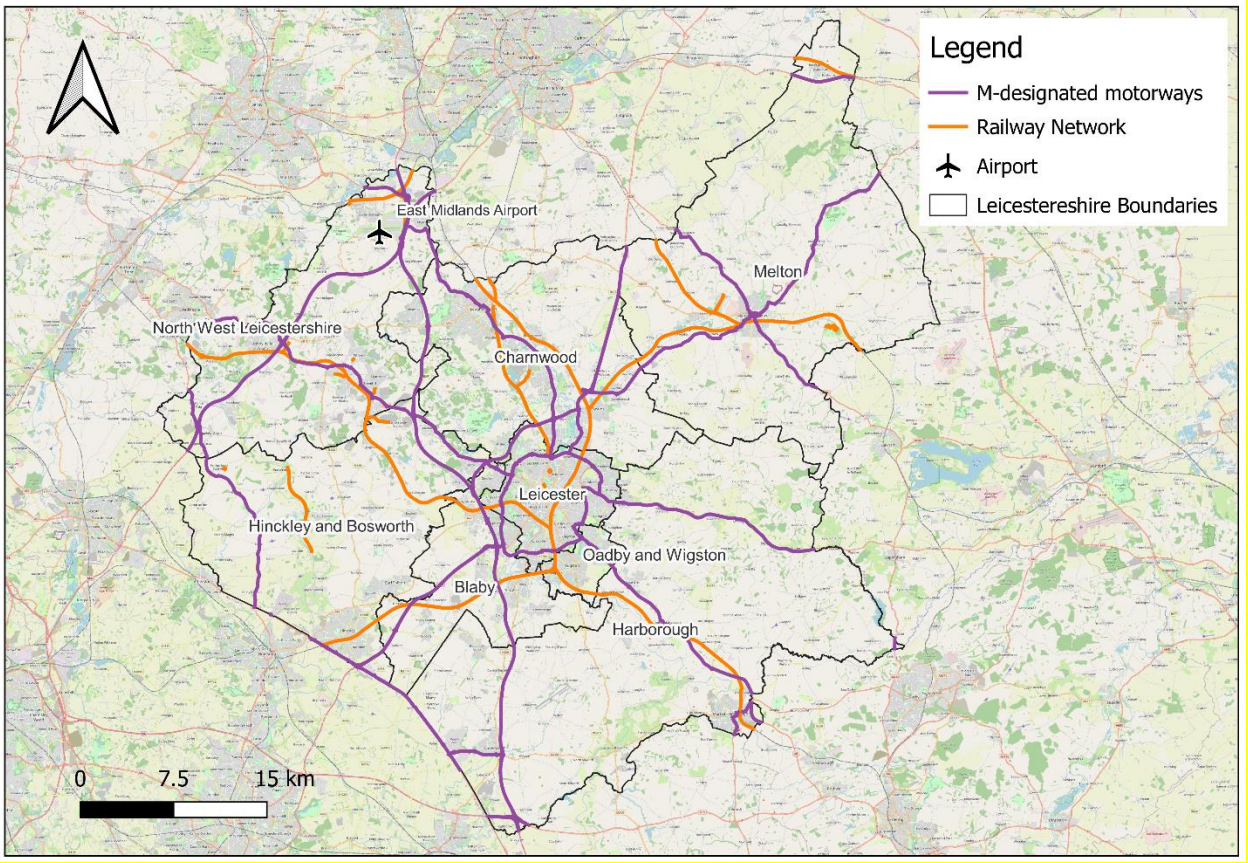

Figure 5-5 Location of key infrastructure assets.

As outlined in the Leicester and Leicestershire enterprise partnership delivery plan (2021 – 2022), there are major infrastructure projects proposed across the study area;

- **SportPark Pavilion 4 (Loughborough University) - Charnwood -** Constructing a 2,000m^2 extension to enable the growth of the successful sports cluster at Loughborough University Science & Enterprise Park (LUSEP).
- **M1 Junction 23 & A512 Access Improvements (LCC) - North West Leicestershire -** Delivering road network improvements to increase capacity and ease congestion enabling the unlocking of land for new homes and employment.
- **HS2 - West Midlands to Leeds -** Subject to consultation, 30km of new railway is proposed to pass through Leicestershire to the north of the County

5.8.1 Key Issues

Leicestershire is a large county with an established network of infrastructure, transport routes, including rural and urbanised areas. The associated key issues are summarised below:

- Critical infrastructure including energy infrastructure, industrial areas, public amenity and transport routes may be vulnerable to local flood risk; and
- Sensitivity of infrastructure to damage/disturbance from local flooding and associated socio-economic costs.

The provision of flood protection provided by the LFRMS must consider the potential consequences for material assets.

5.9 Climate

Leicestershire falls within one climate region, the Midlands, as classified by the Met Office. The mean annual temperature range for the region is between 8.0 and 10°C, compared to the UK mean of 6-14°C (Met Office, 2022).

Temperatures in the region follow seasonal and diurnal variation. January is the coldest month with mean daily minimum temperatures of 0.5°C to about 1.5°C. These temperature extremes of both winter and summer are a key characteristic of the Midlands climate. July is the warmest month with mean daily maximum temperatures exceeding 22°C. Extreme maximum temperatures can occur in July or August.

Rainfall is generally well-distributed through the year, but the wettest month varies across the region. The East Midlands (Leicestershire) tend to have a more even distribution through the year, with summer amounts there associated with showery, convective rainfall. In the drier east and south, 30 to 35 wet days in winter and 20 to 25 wet days in summer are typical. Periods of prolonged rainfall can lead to widespread flooding, especially in winter and early spring when soils are usually near saturation.

The Midlands area is one of the more sheltered parts of the UK, the windiest areas being in western and northern Britain, closer to the Atlantic.

Data from the Department of Business, Energy & Industrial Strategy (2019) "subset dataset", representing carbon dioxide emissions within the scope of influence of local authorities reveals that as of 2019 Leicestershire emitted 4883.3 $ktCO_2$. Which represents around 4.3 tCO_2 per person. This is lower than the average Humber (6.0 tCO_2) and Midlands (5.1 tCO_2) per capita figures. Moreover, this figure is lower than neighbouring Nottinghamshire which emits around 4.6 tCO_2 per person.

5.9.1 Summary of Key Issues

The key issues relating to climate change is the projected increased variability in precipitation events. This is likely to result in the overwhelming of drains and sewers due to increased surface run-off. In turn, this could result in localised flood events, which would have implications for human health, infrastructure and designated sites.

During the summer months, projected rain increases would have an impact on the capacity of drainage systems. More intense events would exceed the capacity of drainage systems and cause surface water runoff and flooding causing localised surface water runoff and flooding from smaller watercourses, particularly in urban areas.

During the winter months, projected rainfall increases are likely to cause saturation of clayey soils, resulting in wet antecedent conditions, which may result in greater vulnerability to further storms, particularly in rural areas.

To ensure Leicestershire remains resilient to the impacts of climate change, the LFRMS must consider how to implement measures aimed at coping with them.

6 SEA Framework

6.1 Introduction

The SEA framework, developed at the scoping stage, is used to identify and evaluate the potential environmental issues associated with the implementation of the LFRMS. The framework comprises a set of SEA objectives that have been developed to reflect the key environmental issues identified through the baseline information review. These objectives are supported by a series of indicators, which are used as a means to measure the potential significance of the environmental issues and can also be used to monitor implementation of the LFRMS objectives. These LFRMS objectives are tested against the SEA framework to identify whether each option will support or inhibit achievement of each objective.

Table 6-1 below summarises the purpose and requirements of the SEA objectives, sub-objectives and indicators.

Table 6-1 Definition of SEA Objectives, Criteria and Targets

	Purpose
Objective	Provide a benchmark 'intention' against which environmental effects of the plan can be tested. They need to be fit-for-purpose.
Sub-objective	Aid the assessment of impact significance. Provide a means of ensuring that key environmental issues are considered by the assessment process.
Indicator	Provide a means of measuring the progress towards achieving the environmental objectives over time. They need to be measurable and relevant and ideally rely on existing monitoring networks.

6.2 SEA Objectives and Criteria

SEA objectives and indicators have been compiled for each of the environmental receptors (or groups of environmental receptors) scoped into the SEA. The SEA objectives for the LFRMS are given in Table 6-2 below. These objectives can be refined or revised in light of any additional information obtained during the life of the project.

Table 6-2 SEA Objectives and Criteria

Receptor	Objective		Sub-objective	Indicator
Landscape and Visual Amenity	1	Protect the integrity of local urban and rural landscapes in the area.	Prevent changes to the landscape character of NCAs and local landscape character types.	Changes in the condition and extent of existing characteristic elements of the landscape. The condition and quality of new landscape features introduced to the environment (i.e. new flood defences).
Biodiversity, Flora and Fauna	2	Maintain, and enhance and extend biodiversity, wildlife and habitat	Protect and enhance protected, important and notable habitats and species and designated nature	Recorded numbers of protected habitats and species.

Receptor	Objective		Sub-objective	Indicator
		connectivity.	conservation sites in the area. Increase biodiversity by enhancing, expanding and connecting existing natural areas and wildlife refuges. Increase biodiversity resilience to flood risk and climate change.	Percentage change in area of priority habitats. 'Condition' of designated wildlife, geological sites, and habitats.
Water Environment	3	Protect and enhance the quality of water features and resources.	Do not inhibit achievement of WFD objectives and contribute to their achievement where possible.	WFD chemical or ecological status of water bodies within catchment.
Geology and Soils	4	Maintain soil quality and conserve geological designations.	Reduce risk of contamination from all sources. Maintain soil quality and quantity. Conserve the condition of geological designated sites.	Number of contamination incidents. Risk levels of contamination. Soil quality. 'Condition' of geological designated sites.
Historic Environment	5	Preserve and where possible enhance important heritage assets.	No adverse impact on designated heritage assets as a result local flooding. No adverse impact on the integrity/setting of designated heritage assets as a result of local flood risk management measures.	Number of designated heritage sites at risk from local flooding. Number of heritage assets adversely impacted upon by local flood risk management measures.
Population and Human Health	6	Protect and enhance human health and wellbeing.	Conserve and enhance open (including urban amenity areas) and natural green spaces including PRoW. Protect key social infrastructure assets and services from flooding and increase resilience to climate change.	Number of open and natural green spaces. Number and value of PRoW routes. Number of residential properties at risk from flooding. Number of key services at risk from local flooding. Health and wellbeing statistics.

Receptor	Objective		Sub-objective	Indicator
Material assets	7	Minimise the impacts of flooding to the transport network and key critical infrastructure.	No increase in length of road and rail infrastructure at risk from local flooding. No increase in number of infrastructure assets at risk from local flooding. No increase in number of Green Infrastructure assets at risk of local flooding and/or an enhancement of current Green Infrastructure Assets in the area.	Length of road and rail infrastructure at risk from local flooding. Number of key infrastructure assets at risk from local flooding. Number of green infrastructure assets at risk from flooding/created or enhanced through implementation of the LFRMS.
	8	Minimise local and national contribution to climate change.	Minimise short-term carbon and reduce long-term emissions by preferencing low carbon and carbon neutral solutions.	Number of flood management measures implemented that will also sequester carbon.

7 Stage B: Developing and Refining Options and Assessing Effects

7.1 Developing Alternatives

The SEA Regulations require an assessment of the plan and its 'reasonable alternatives'. In order to assess reasonable alternatives, different strategy options for delivering the LFRMS have been considered and assessed at a strategic level against the SEA objectives (see Table 7-1) and environmental baseline. The results of this assessment will be used to inform the decision-making process in choosing a preferred way of delivering the LFRMS.

7.2 Appraisal of Reasonable Alternatives

The LFRMS has the purpose of managing and reducing local flood risk in the study area. A high level review of the options against the SEA Objectives was undertaken in the form of a simple matrix for each of the following options:

- Do Nothing - where no action is taken, and existing assets and ordinary watercourses are abandoned.
- Do minimum: maintain current Leicestershire County Council Local Flood Risk Management Strategy (2015)- where existing assets and watercourses are maintained as present in line with the existing local flood risk management plan as an alternative to preparing a new one. Existing infrastructure is not improved over time and the effects of climate change are not taken into account.
- Manage and reduce local flood risk - take action to reduce the social, economic and environmental impact due to flooding through the preparation of a new LFRMS.

Table 7-1 compares all three strategy options against each of the SEA objectives.

Table 7-1 Assessment of the Strategy and Alternative Options Against the SEA Objectives

SEA Objectives		Options and Effects		
		Do Nothing	Do minimum: maintain current local flood risk strategy (2015)	Manage and reduce local flood risk
1	Protect the integrity of local urban and rural landscapes in the area.	Potential negative effect resulting from no management that could adversely impact sensitive landscape character. Locally important landscape features, including those identified within the LCAs, would likely be exposed to damage and deterioration through increased exposure to flood risk.	Little change to baseline in the short to medium term. However, in the future, as a result of climate change and increasing flood risk, adverse impacts on local landscapes may arise.	Potential for managing and promoting this objective through sensitively designed flood risk management schemes which enhance local landscape character, such as natural flood management.
2	Maintain and enhance biodiversity, wildlife and habitat connectivity.	Potential for both adverse and beneficial impacts. For example, abandonment of assets may allow for the development of more natural watercourses	Little/no change to baseline levels in the short to medium term. However, as a result of increased flooding in the	Potential for both adverse and beneficial impacts as a result of active management. Opportunities may arise to enhance biodiversity and

SEA Objectives		Options and Effects		
		Do Nothing	Do minimum: maintain current local flood risk strategy (2015)	Manage and reduce local flood risk
		and wetland habitat creation/ enhancement through increased inundation. However, there could be an increased risk of spreading of non-native invasive species through flooding; deterioration of existing wildlife corridors; and detrimental impacts on habitats intolerant of increased inundation.	future due to climate change, new habitats may be created, or existing wetland habitats enhanced. Although, habitats intolerant of increased inundation or changes in water quality may be adversely affected.	notable habitats within the Council through the implementation of measures to reduce local flood risk, for example: natural flood management measures, improvements to fish passage; encouraging appropriate management of watercourses by riparian landowners; and undertaking watercourse maintenance.
3	Protect and enhance the quality of water features and resources.	Potential for both adverse and beneficial impacts.	Little/no change to baseline levels. However, potential deterioration of water quality during flooding incidents.	Potential for both adverse and beneficial impacts.
4	Maintain soil quality and conserve geological designations.	Potential negative effect resulting from increased erosion of soils as a result of increased flooding and no management of land contamination risks and subsequent effects.	Little/no change to baseline in the short to medium term. However, in the future, as a result of climate change, adverse impacts may arise through erosion and land contamination from increased flooding.	Potential for managing and promoting this objective through reduced flood risk, which will help to protect the Council area's soil resource from erosion and its quality.
5	Preserve and where possible enhance important historic and cultural sites.	Heritage assets will likely be exposed to damage and deterioration through increased exposure to flood risk.	Little/no change to baseline in the short to medium term. However, in the future, important heritage assets may be exposed to increased flooding and damage due to climate change.	Potential for both adverse and beneficial impacts as a result of active management, for example through increased protection of vulnerable heritage assets or reduced inundation resulting in the desiccation of buried archaeology
6	Protect and enhance human health and wellbeing.	Increased exposure to flood risk from a combination of no management and climate change. This	No improvements to health and well-being as existing flood risk is maintained and the	Active management to reduce local flood risk should help to protect residential properties and key social

SEA Objectives		Options and Effects		
		Do Nothing	Do minimum: maintain current local flood risk strategy (2015)	Manage and reduce local flood risk
		could lead to a greater number of people and their properties at risk of flooding, causing greater damage and disruption, increases in social exclusion, deprivation and health risks.	risk may increase in the future as a result of climate change.	infrastructure services from flooding. This has the potential to create a range of social benefits including reducing associated health impacts and social deprivation.
7	Minimise the impacts of flooding to the transport network and key critical infrastructure.	This option is likely to result in increased flood risk to key infrastructure, which would cause significant disruption to the county, impacting on human and economic activity and the environment.	Maintains the current flood risk levels, although this risk may increase in the future due to climate change.	Managing and reducing local flood risk will minimise the impact of flooding on roads, railways and other infrastructure assets. This will reduce disruption during flood events and enable a more effective response.
8	Minimise local and national contribution to climate change.	Increased exposure to flood risk may result in increased emissions locally. For example, from emissions associated with the recovery effort following flood events.	Little/no change to baseline levels in the short to medium term. However, as a result of future climate change and associated increased flood risk, there may be an increase in emissions following flood events.	Potential for negative impacts if management is carried out using hard engineering approaches which contribute embodied carbon. Potential for management through low carbon measures such as natural flood management.

The assessment detailed in Table 7-1 indicates that Option 1 (do nothing) is likely to result in several significant adverse impacts, particularly in relation to people and property, and other environmental assets including heritage assets and biodiversity, where increased flooding may create new pathways for the spread of invasive non-native species. Surface water and groundwater quality could also be adversely affected, with increased flooding of contaminated sites leading to greater impacts on water resources. Given it is a statutory requirement under the Flood Management Act for the LLFA to maintain a strategy for local flood risk management in Leicestershire, it is not an appropriate option to pursue.

Option 2, maintaining the current Local Flood Risk Management Strategy (2015), is likely to result in little or no change in the environmental baseline in the short to medium term as the existing flood risk strategy would maintain existing levels of flood protection. However, as a result of climate change, flood risk will increase, resulting in many of the impacts identified under Option 1, although potentially to a lesser extent and significance. Whilst the existing LFRMS meets the statutory requirements for a flood plan, it does not take into consideration updates to the national strategy and improved knowledge and understanding of flood risk in Leicestershire and how it can be managed.

Option 3 requires the preparation of a new plan and has the potential to provide a range of environmental benefits. If designed and implemented appropriately, this could include reducing flood risk to people and property, contributing to the protection of heritage assets and improvements in water quality, and providing new opportunities for habitat creation and the provision of recreation and amenity assets. However, if implemented in an inappropriate manner, this could result in adverse effects on a range of environmental features. This risk is managed through the preparation of this SEA and through the correct application of the strategy, and associated policies and guidance, which is likely to require consideration of the sustainability of a project prior to its implementation. Therefore, it is evident that by doing nothing or maintaining existing management strategies, there are likely to be detrimental effects on the SEA objectives, which are likely to be prevented by carrying out active management measures as detailed in the LFRMS.

8 Appraisal of LRFMS Objectives and Actions to Improve Flood Risk

8.1 Appraisal

The LFRMS comprises a framework of five objectives, informed by five overarching principles, covering the main ways in which local flood risk is managed in Leicestershire.

They are strategic objectives implemented through the measures detailed in the Strategy action plan. The objectives and action plan measures have been compared against the SEA objectives in order to assess the potential effects and to understand how the objective considers and protects the environment, ensuring the principles of sustainability.

8.2 Impact Significance

The appraisal seeks to identify significant effects as required by the SEA Regulations and sets out potential mitigation measures (potential improvements), as detailed in Section 7.5.

The degrees of significance for an effect have been considered. Table 8-1 below lists the five significance categories that have been used to determine effects of the LFRMS.

The unmitigated impacts of the LFRMS Actions on achieving the SEA objectives will be identified through the analysis of the baseline environmental conditions and use of professional judgement. The significance of effects will be scored using the five-point scale summarised in Table 8-1 below. If there is high uncertainty regarding the likelihood and potential significance of an impact (either positive or negative), it will be scored as uncertain.

Table 8-1 Impact Significance Key

Impact Significance	Impact Symbol	Description
Significant positive impact	++	Significantly beneficial to the SEA objective -multiple opportunities for environmental improvement or resolves existing environmental issue.
Minor positive impact	+	Partially beneficial (not significant) to the SEA objectives – contributes to resolving an existing environmental issue or offers some opportunities for improvement.
Neutral impact	O	Neutral effect on the SEA objective and environment.
Minor negative impact	-	Partially undermines (not significantly) the SEA objective – would contribute to an environmental issue or reduce opportunities for improvement.
Significant negative impact	--	Significantly undermines the SEA objective – will significantly contribute to an environmental problem or undermine opportunity for improvement.
Uncertain impact	?	Insufficient detail on the option or baseline – cannot effectively assess the significance of the strategy objective on the SEA objective.

8.3 Assessment Approach

The LFRMS objectives and actions have been evaluated in light of their potential cumulative, synergistic, direct and indirect environmental effects on the different SEA receptors selected for further assessment. The assessment of these environmental effects has been informed by the baseline data collected at the scoping stage, professional judgement and experience with other water level management and flood risk related SEAs, as well as an assessment of national, regional and local trends. In some cases, the assessment has drawn upon mapping data and GIS to identify areas of potential pressure, for example due to presence of environmental designations.

Throughout the assessment the following will apply:

- Positive, neutral and negative impacts will be assessed, with uncertain impacts highlighted;
- The duration of the impact will be considered over the short, medium and long term;
- Consideration of whether the impact would be directly on a receptor or indirectly;
- The reversibility and permanence of the impact will be assessed. For example: temporary construction impacts, such as during decommissioning pumping stations; impacts which can be mitigated against/restored over time such as altered drainage pressures; or completely irreversible changes to the environment; and
- In-combination effects will also be considered.

The significance of effects upon each of the SEA objectives will then be evaluated and used to inform option selection.

8.4 Limitations and Assumptions

The LRFMS actions are fairly high level and generic and do not include specific details such as location, scale and/or implementation methods. As such, any assessment is based upon a high-level understanding of the individual actions.

It is assumed that actions will be undertaken in accordance with local and national policies, and to best practice guidance.

8.5 Assessment

The Assessment of LFRMS objectives and actions against the SEA objectives is shown below in Table 8-2 and Table 8-3. Cumulative effects of the actions against the SEA objectives are shown in Table 8-4. These are qualitative assessments that identify the range of potential effects that the LFRMS may have on delivering the SEA objectives.

Table 8-2 Assessment of LFRMS Objectives and SEA Objectives

LFRMS Objective	SEA Objective								Comments
	1	2	3	4	5	6	7	8	
1. To manage local flood risk through the effective management of flood risk assets, watercourses, and catchments	+	+	+	+	+	+	+	+	This objective seeks to positively benefit population and human health and material assets through reduced flood risk. The impact upon the remaining SEA objectives is unclear as impacts will vary due to the type of management implemented. However, it is assumed that effective management will utilise increased understanding of flood risk in Leicestershire and take into account the existing environmental baseline to positively contribute to all of the SEA objectives.
2. To manage local flood risk through encouraging sustainable development	+	+ +	+ +	+	+	+	+	+ +	Promoting sustainable development should positively benefit all SEA objectives, particularly if this development takes into consideration the existing environmental baseline and likely future issues. Sustainable development through implementation of SuDS would provide significant benefits to biodiversity, improve water quality, and sequester carbon.
3. To manage local flood risk through effective preparedness, response to, and recovery from flood events.	O	O	O	O	O	+ +	+	O	This objective should positively benefit population and human health and material assets through improved resilience to flood events which may minimise impacts of flooding on communities and infrastructure. There will also be benefits through support provided during recovery from flood events. These measures are likely to significantly enhance human health and wellbeing. This objective will most have neutral effects for the rest of the SEA objectives as there are no direct links with the topic they cover.

4. To better understand local flood risk and impacts, informing approaches to managing this risk.	+	+	+	+	+	+	+	+	This objective should promote better flood management in the area through implementation of appropriate measures. This has the potential to have positive benefits on population and human health and material assets by improving resilience to future flooding. There is also potential for there to be benefits to other receptors including biodiversity, landscape, historic environment, water environment, geology and soils and climate if a strong understanding of local flood risk is achieved and appropriate flood management measures are implemented to facilitate environmental improvements.
5. To manage local flood risk through developing and or managing local projects for at-risk communities.	+	+	+	+	+	+	+	+	This objective should positively benefit population and human health and material assets through reduced flood risk and improved resilience in at-risk communities. However, conducting cost-effective flood management solutions could mean that some communities are favoured over others and the LFRMS must ensure that consideration is given to all communities and social infrastructure. Analysis of available data to inform appropriate selection of flood risk management measures would have the potential to positively contribute to the SEA objectives. For example, through the implementation of natural flood management or sustainable urban drainage systems there may be opportunities for habitat creation and improvements to water quality.

Table 8-3 Assessment of LFRMS Actions Against SEA Objectives

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
All	Leicestershire Flood Risk Management Board	The LLFA will continue to coordinate and chair the Leicestershire Flood Risk Management Board	O	O	O	O	O	+	+	O	Coordinating and chairing the Flood Risk Management Board will not have any direct effects on the SEA objectives, but will likely have indirect effects on some objectives through promoting better flood management strategies in the area.
1	Riparian guidance	The LLFA will signpost and make available guidance for riparian landowners, and proactively disseminate this in locations of identified priority.	+	+	+	+	+	+	+	+	Providing advice to riparian landowners should help to promote appropriate measures for management of watercourses passing through their land. This presents opportunities to promote the implementation of measures (such as natural flood management and SuDS) which would have wider positive long-term indirect benefits on all SEA objectives (in particular landscape, biodiversity and water resources). However, targeting specific communities may mean that some are favoured over others and the LFRMS must ensure that consideration is given to all communities and social infrastructure.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
1	Ordinary watercourse regulation	The LLFA will regulate ordinary watercourses in accordance with the Leicestershire Ordinary Watercourse Regulation and Culvert Policy, and supporting guidance.	+	+	+	+	+	+	+	O	Ordinary watercourses are a key source of local flood risk. Proper regulation of watercourses will ensure that any works do not increase flood risk and will have positive long-term effects on water resources (namely water quality) ecological and material receptors. Ensuring works do not increase flood risk may also have indirect positive effects on historic and cultural sites and geological designations in areas at risk of flooding, along with locally important landscape features.
1	Asset register and record	The LLFA will continue to maintain the Leicestershire Flood Risk Asset Register and Record in accordance with the Leicestershire Asset Register and Record Policy.	O	O	O	O	O	+	+	O	Maintaining a register will not have any identified direct effect on SEA receptors, however this action should promote better flood management in the area, particularly if there is a focus on assets which have a significant effect upon local flood risk.
1	Highway drainage maintenance	The Local Highway Authority will continue to maintain highway drainage assets in accordance with the Leicestershire Highway Infrastructure Asset Management Plan.	O	O	+	O	O	O	+	O	Continuing to maintain highway drainage assets will have positive benefits to material assets as a result of minimising surface water flooding impacts on infrastructure, including highways. This action will also have a positive impact upon water quality as a result of attenuation of highway runoff.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
1	Catchment partnerships	The LLFA will work with catchment partnerships and landowners to integrate environmental and flood risk management workstreams.	+	+ +	+	+	+	+	+	+	Incorporating environmental workstreams into flood risk management will lead to management solutions which have direct benefits to the ecological receptors, for example, the implementation of natural flood management measures. This likely have an indirect positive effect on landscape, cultural assets, population, human health, material assets and climate change. Opportunities through partnership working may also arise for the benefit of other receptors (e.g. protection of cultural heritage assets).
1	Natural Flood Management	The LLFA with support from catchment partnerships will seek to maximise opportunities for natural flood management across Leicestershire.	+	+ +	+ +	+	+	+	+	+ +	Maximising opportunities for natural flood management will have direct, long-term benefits to ecological receptors and will also likely lead to improvements in water quality, along with sequestering carbon. Implementation of natural flood management may also have indirect positive effects on landscape, cultural assets, amenity, population, human health and material assets

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
2	Surface water consultee major applications	The LLFA will continue to fulfil its role as statutory consultee for surface water drainage matters on all major planning applications, in accordance with national and local policies and guidance.	+	+	+	+	+	+	+	O	Continuing the role of the LLFA as statutory consultee will have indirect positive benefits to material assets as a result of minimising surface water flooding impacts on infrastructure. As statutory consultee, the LLFA could promote the use of sustainable flood risk management measures, such as SuDS, which would indirectly positively impact several SEA objectives.
2	Pre-application advice and chargeable services	The LLFA will review all options for implementing a chargeable service for planning pre-application advice and other service delivery.	O	O	O	O	O	+	+	O	Reviewing pre-application arrangements should result in early consideration of flood risk in development proposals and would result in benefits to human and material receptors by ensuring that developments appropriately consider flood risk management measures.
2	SuDS Approval Bodies	The LLFA and other RMAs will prepare for implementation of Schedule 3 of the Flood and Water Management Act 2010 and if required revise the Strategy Action Plan if implemented.	+	+	+	O	O	O	O	+	Preparation for implementation of Schedule 3 and revision of an action plan for the implementation of sustainable drainage would indirectly positively impact on several SEA objectives. The implementation of sustainable drainage measures would be beneficial for biodiversity, water quality and amenity improvements along with carbon sequestration.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
2	Local guidance coordination	Risk management authorities and those involved in development approvals will continue to work to together to ensure coordinated local standards and developer guidance, from pre-application to completion.	+	+	+	+	+	+	+	+	Ensuring coordinated standards regarding flood risk will ensure development does not increase, and/or has the opportunity to decrease flood risk. Standards and guidance may also include measures to ensure development delivers wider environmental, social and economic benefits which can be ensured for the long-term.
2	Local planning policy	Risk management authorities will support the development and review of local planning policy affecting local flood risk management. This includes local development plans, infrastructure development plans, strategic flood risk assessments, and neighbourhood plans.	+	+	+	+	+	+	+	+	Updating planning policies so that new development does not increase, and/or has the opportunity to decrease flood risk, has the potential to provide social benefits to local communities. Policies may also include measures to ensure development delivers wider environmental and socio-economic benefits in addition to resilient developments.
3	Leicestershire and Rutland Multi-agency Flood Plan	LLR Prepared will continue to maintain the Multi-Agency Flood Plan for Leicestershire, Leicester City and Rutland	O	O	O	O	O	O	O	O	Continuing to maintain the Flood Plan will have beneficial impacts on local communities and material assets.
3	Community flood action plans	LLR prepared, and risk management authorities will continue to assist local communities in producing and maintaining community flood action plans.	O	O	O	O	O	+	+	O	Community Flood Plans and flood action groups will promote awareness of flood risk and understanding of response plans. This will not have any identified direct effect on SEA receptors. However, this action should promote better understanding of flood risk and management plans in the area.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
3	Flood exercises	LLR Prepared and risk management authorities will continue to plan and support flood exercises as and when required and resources allow, implementing lessons learnt.	O	O	O	O	O	++	+	O	Conducting flood exercises and implementing lessons learnt will increase preparedness for flooding and hence will benefit population and human health and wellbeing. This will also benefit management of social infrastructure.
3	Environment Agency Flood Warning Service	Risk Management Authorities will continue to promote the Environment Agency's flood warning service where it is available in Leicestershire.	O	O	O	O	O	+	O	O	Continuing to promote the EA's flood warning service will indirectly benefit local communities through provision of alerts of likely flood risk. However, the Environment Agency's flood warning service does not cover all communities at risk of flooding, particularly those at risk from local sources.
3	Community Initiatives	Risk management authorities will work together to develop initiatives and web-based information to enhance community preparedness and resilience to flooding.	O	O	O	O	O	++	+	O	Enhancing community preparedness and resilience to flooding will reduce the impact of flooding on communities and allow them to respond more effectively to flood events. This will lead to increased community health and wellbeing, and enable measures to be taken to protect infrastructure.
3	Recovery schemes	Risk Management Authorities will continue to support national recovery schemes following flood events.	O	O	O	O	O	++	+	O	Supporting long-term flood recovery schemes will help communities recover after flooding and respond more effectively to future flood events, leaving them less vulnerable to further events in the future.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
3	Flood investigation and reporting	The LLFA will continue to complete and publish formal flood investigations in accordance with the Leicestershire Formal Flood Investigations Policy	O	O	O	O	O	+	+	O	Undertaking investigations will not have any identified direct effect on SEA receptors, however investigating potential contraventions of the Land Drainage Act should promote better flood management in the area.
4	Surface Water Model	The LLFA will manage the production and maintenance of detailed surface water modelling for Leicestershire.	+	+	+	+	+	+	+	+	Surface water modelling will not have any identified direct effects on the SEA objectives; however, the action should increase understanding of flood risk in the area (including flood risk to sensitive receptors). The results will inform better flood management which may lead to indirect benefits to multiple SEA objectives.
4	Market Harborough Surface Water Management Plan	The LLFA will maintain and coordinate the Market Harborough Surface Water Management Plan.	+	+	+	+	+	+	+	O	Coordinating the SWMP will not have any identified direct effects on the SEA objectives. However, there is the potential to identify opportunities for environmental enhancement through promotion of natural flood management and SuDS measures.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
4	Cossington flood study	The LLFA will continue to investigate flooding mechanisms for the community of Cossington.	+	+	+	+	+	+	+	O	Understanding flooding mechanisms should promote more effective flood management in the community of Cossington, reducing flood risk to key receptors including rivers Soar and Wreake (both of poor WFD ecological status); Cossington C of E primary school; residential and commercial properties; and numerous listed buildings. A map highlighting these receptors that could benefit from flood management as a result of this study can be found in Appendix A.1 of this report.
4	Loughborough Surface Water Management Plan	The LLFA will maintain and coordinate an update to the Loughborough Surface Water Management Plan.	+	+	+	+	+	+	+	O	Updating the Loughborough SWMP will increase understanding of causes of surface water flooding in the area and promote better flood management in the area and will have indirect benefits to: ecological receptors including Loughborough Meadows SSSI, and Beaconhill, Hangingstone and Out Woods SSSI; numerous listed buildings and scheduled monuments; residential and commercial properties. A map highlighting these receptors that could benefit from the SWMP can be found in Appendix A.6 of this report.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
4	Great Easton	The LLFA will work with partners to assess the feasibility of natural flood management upstream of Great Easton	+	+ +	+	+	+	+	+	+	Supporting use of nature-based solutions will have long-term, direct benefits to the ecological receptors, including the Eye Brook (poor WFD ecological status) and Eye Brook reservoir SSSI. Natural flood management can provide a solution that is low carbon and has the potential to increase habitats and improve water quality. The use of nature-based solutions would therefore also have an indirect positive effect on landscape, cultural assets, population, human health, material assets and climate change. A map highlighting these receptors can be found in Appendix A.7 of this report.
4	Diseworth	The LLFA will continue to investigate the feasibility of flood alleviation for the community of Diseworth.	+	+	+	+	+	+ +	+	O	Investigating flood alleviation options will have indirect positive benefits on SEA objectives by promoting better flood management in the area of Diseworth. Key receptors in Diseworth which could benefit from flood alleviation measures include Diseworth C of E primary school; residential and commercial properties; and numerous listed buildings. A map highlighting these receptors can be found in Appendix A.2 of this report.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
4	Long Whatton	The LLFA will continue to investigate the feasibility of flood alleviation for the community of Long Whatton.	+	+	+	+	+	++	+	O	Investigating flood alleviation options will have indirect positive benefits on SEA objectives by promoting better flood management in the area of Long Whatton. Key receptors in Long Whatton that could benefit from flood alleviation include: the River Soar (poor WFD ecological status); Long Whatton C of E primary school; residential and commercial properties; and numerous listed buildings. A map highlighting these receptors can be found in Appendix A.3 of this report.
4	Stoney Stanton	The LLFA will continue to investigate the feasibility of flood alleviation for the community of Stoney Stanton.	+	O	+	+	O	++	+	O	Investigating flood alleviation opportunities will indirect positive benefits on SEA objectives by promoting better flood management in the area of Stoney Stanton. Key receptors in Stoney Stanton that could benefit from flood alleviation measures include: the River Soar (poor WFD ecological status) Manorfield primary school; several listed buildings; residential and commercial properties. A map highlighting these receptors can be found in Appendix A.4 of this report.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
4	Mease Special Area of Conservation	The LLFA and Environment Agency will continue to investigate options for reducing flood risk including natural flood management, in the Mease Special Area of Conservation.	+	+ +	+ +	+	+	+	+	+ +	Supporting use of nature-based solutions will have direct benefits to the ecological receptors, including the River Mease SSSI, and will have a positive impact upon the Mease WFD classification, which is classified as Fail for chemical status and poor/moderate for ecological status. Natural flood management would also sequester carbon. Reduction in flood risk will have an indirect positive effect on landscape, cultural assets, population and human health (especially for receptors in flood-prone areas such as Appleby Magna, Packington and Moira), material assets and climate change.
4	Oadby	The LLFA will coordinate work with relevant risk management authorities to better understand flood risk in Oadby.	+	+	+	O	+	+	+	O	Reviewing flood risk will have indirect positive benefits on SEA objectives by promoting better flood management in the area. Key receptors in Oadby that would benefit from flood management measures include Lucas Marsh LNR; Knighton Spinney LNR; The Beauchamp College; residential and commercial properties; and numerous listed buildings and scheduled monuments. A map highlighting these receptors can be found in Appendix A.5 of this report.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
4	Hinckley and Burbage	The LLFA will coordinate work with relevant risk management authorities to better understand flood risk in Hinckley and Burbage.	+	+	+	+	+	+	+	O	Reviewing flood risk will have indirect positive benefits on SEA objectives by promoting better flood management in the area. Key receptors in Hinckley and Burbage include: Burbage Wood and Aston Firs SSSI; Burbage Common & Woods LNR; Soar Brook (poor ecological quality); residential and commercial properties; and numerous listed buildings. A map highlighting these receptors can be found in Appendix A.9 of this report.
5	Completed Scheme Monitoring	Risk management authorities will monitor the benefits of completed flood risk management schemes	O	O	O	O	O	+	+	O	Understanding the benefits of completed flood alleviation schemes will not have any identified direct effects on the SEA objectives, however, the action should promote better flood management in the area.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
5	Breedon-on-the-Hill Flood Alleviation Scheme	The LLFA will manage the delivery of the Breedon-on-the Hill flood alleviation scheme.	?	+	+	?	?	+ +	+	+	Delivery of a flood alleviation scheme will result in reduced risk to the local community for the benefit of population, human health and material assets; in particular, for the 20 homes impacted by the major flood event in June 2016. However, physical works to install, manage and maintain flood assets may have permanent adverse impacts on designated sites in the proximity of the works, including Breedon Hill SSSI, Ramsley Brook (poor ecological quality) and The Bulwarks scheduled monument. There is the potential that works will promote positive impacts for these receptors through managing water within the locality for their benefit. Natural flood management and SuDS is also proposed for the scheme which may have multiple benefits to SEA objectives. More detail is required to assess the precise impact to most SEA objectives. A map highlighting these receptors can be found in Appendix A.8 of this report.

Main Objective Link	Title	LFRMS Actions	SEA Objectives								Comments
			1	2	3	4	5	6	7	8	
5	Pipeline of schemes	The LLFA will maintain a pipeline of local projects	?	?	?	?	?	+	+	?	Delivery of flood alleviation schemes will result in reduced risk to the local community for the benefit of population, human health and material assets. However, it is unknown what these projects area and physical works to install, manage and maintain flood assets may have adverse impacts on designated sites (both ecological and cultural) in the proximity of the works. There is the potential that works will promote positive impacts for these receptors through managing water within the locality for their benefit.

8.6 Summary of Assessment

A Summary of effects of LFRMS Actions on SEA Objectives is outlined in Table 8-4 below.

Table 8-4 Cumulative effects of LFRMS objectives against SEA objectives

Receptor	SEA Objective	Assessment Score	Justification
Landscape and Visual Amenity	Protect the integrity of local urban and rural landscapes in the area.	+	In general, many of the LFRMS actions will directly contribute to objectives relating to landscape and visual amenity. The LFRMS provides opportunities for landscape enhancements through the implementation of natural flood management and SuDS, which may enable the protection and enhancement of green spaces, river corridors and woodland to enhance visitor experience and provide recreational amenity. There is the potential for adverse impacts to visual receptors through the construction of new defence schemes. New schemes should be designed to avoid the potential for significant landscape impacts, minimising hard engineering and encouraging nature-based solutions, and where impacts are identified, they should be mitigated appropriately.
Biodiversity, Flora and Fauna	Maintain and enhance biodiversity, wildlife and habitat connectivity.	+	The LFRMS actions contribute both directly and indirectly to ecological objectives. Promoting better flood management and reducing flood risk to key ecological receptors, including designated sites, will enhance biodiversity whilst safeguarding habitat connectivity corridors. The LFRMS provides opportunities for ecological enhancements through the implementation of natural flood management schemes, which would help deliver policy objectives for the natural environment including habitat enhancements, improved ecological connectivity and increased biodiversity resilience to flood risk and climate change. There is the potential for adverse impacts to ecological receptors through the implementation of hard flood defence schemes. Impacts may arise from disruption of species and habitats from construction activities. New schemes should be designed to avoid the potential for significant ecological impacts, and where impacts are identified, they should be mitigated appropriately.

Receptor	SEA Objective	Assessment Score	Justification
Water Environment	Protect and enhance the quality of water features and resources.	+	Promoting better flood management and reducing flood risk will help to improve water quality and WFD status across the council area. A reduction in the frequency and magnitude of flood events will help prevent sewage spillage incidents and entry of litter into watercourses. The LFRMS provides opportunities for enhancement to the water environment through the implementation of natural flood management and SuDS schemes. Such schemes would help reduce flood risk whilst providing water quality benefits by improvements such as: restoring natural sediment processes; reducing surface runoff and increasing infiltration rates; and reconnection of floodplains. There is the potential for adverse impacts to the water environment through the construction of flood defence schemes. Impacts may arise from spillages and dust pollution during construction activities. New schemes should be constructed in line with industry best practice guidance in order to avoid the potential for significant impacts, and where impacts are identified, they should be mitigated appropriately.
Geology and Soils	Maintain soil quality and conserve geological designations.	+	The LFRMS will contribute to objectives relating to geology and soils by reducing flood risk and promoting better flood management. Reduction in the frequency and magnitude of flooding events will help prevent soil contamination incidents, soil erosion and help conserve the condition of geological designated sites.

Receptor	SEA Objective	Assessment Score	Justification
Historic Environment	Preserve and where possible enhance important historic and cultural sites.	+	The LFRMS will benefit historic environment assets due to better flood management and reduced flood risk. Reduction in flood frequency and magnitude will help prevent damage to cultural heritage receptors, including listed buildings and scheduled monuments, which are prone to loss of stability, collapse, biodegradation and moisture-induced damage following flooding. LFRMS actions will also help to improve the setting of heritage assets. There is the potential for adverse impacts to the water environment through the construction of flood defence schemes. Impacts may arise from damage to heritage assets and their setting during construction activities. New schemes should be constructed in line with industry best practice guidance in order to avoid the potential for significant impacts.
Population and Human Health	Protect and enhance human health and wellbeing.	++	The LFRMS actions will directly benefit population and human health receptors through reduced flood risk. A reduction in the frequency and magnitude of flood events will reduce flooding impacts to residential and commercial properties, and key infrastructure such as educational and healthcare facilities. Flood risk reduction and community involvement in planning and recovery will also help to decrease the cost and stress of living in high flood risk areas and dealing with flooding consequences. The construction of new flood defence schemes will improve infrastructure resilience to climate change.
Material assets	Minimise the impacts of flooding to the transport network and key critical infrastructure.	++	Overall, the LFRMS objectives are likely to have a significant positive impact in relation to this SEA objective as the LFRMS includes several actions that seek to improve the resilience of material assets in the county. Reduction in flood risk will reduce impacts to key such as road, rail and power grid.

Receptor	SEA Objective	Assessment Score	Justification
	Minimise local and national contribution to climate change.	O	The majority of LFRMS actions do not directly contribute to climate change objectives as they do not reduce local carbon emissions. However, reduction in flood risk may indirectly reduce emissions by reducing the requirement for rebuilding/redevelopment after large flood events. In addition, natural flood management and associated green space enhancement may improve local carbon sequestration.

8.7 Mitigation

There were not any negative effects identified in the assessment and therefore on this basis no specific mitigation measures are required. However, potential areas of improvement and consideration for refining the LFRMS objectives and actions are included below.

This is in accordance with the Schedule 2 of the SEA Regulations (7) which states that the Environmental Report should include 'the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme'.

It should be ensured that any flood alleviation scheme be designed to avoid impacts to SEA receptors and take steps to actively enhance them. This may be completed through an Environmental Impact Assessment (EIA) methodology. Natural flood management approaches should be implemented where possible to best work with the natural and built environment and reduce impacts of flood alleviation schemes on the environment.

Where possible, options to reduce flood risk whilst contributing to local carbon reduction targets should be considered, such as through natural flood management.

9 Conclusions and Recommendations

The key aim of the LFRMS is to manage local flood risk by technically, economically, socially and environmentally appropriate options. The intention of the strategy is to set out the roles and responsibilities and to improve local flood risk management so as to minimise the impact of flooding on infrastructure, businesses and properties.

The SEA has been undertaken to identify the likely significant environmental effects of the implementation of the LFRMS. A proportionate approach was adopted towards establishing the scope of the SEA, reflecting the high-level nature of the LFRMS.

A range of different strategy options for delivering the LFRMS have been assessed at a strategic level against the SEA objectives. These alternatives include the 'do nothing' scenario, where no action is taken and existing assets and ordinary watercourses are abandoned, and the 'maintain current Local Flood Risk Management Strategy (2015)' scenario, where existing assets and watercourses are maintained as present in line with current levels of flood risk.

The 'Do Nothing' approach would promote an overall negative effect on the SEA objectives as a result of abandoning current management practices, increasing the risk of local flooding. This impact would be likely to increase over time as responsible bodies will be unable to incorporate precautionary measures in existing or new developments in a response to climate change pressures. The mid-way option of 'Maintain Current Flood Risk Strategy' is unlikely to worsen the current impacts on SEA receptors or have significant change on baseline levels. However, by not fully considering the adaptation to climate change pressures, the current level of flood risk management may be insufficient to prevent detrimental impacts on the environment, socially and ecologically, in the future. The only realistic approach to be employed by LCC is the 'Manage and Reduce Flood Risk' option, which offers more beneficial environmental outcomes and a pro-active approach to flooding pressures.

Many of the proposed measures detailed in the LFRMS have the potential for direct and indirect benefits. The majority of the LFRMS objectives are likely to have indirect beneficial effects upon the environment as they relate to enhanced understanding and awareness of flood risk along with high-level flood risk management measures rather than individual actions. The assessment of the LFRMS objectives and actions against the SEA objectives highlights positive impacts, especially on SEA objectives 6 and 7. By actively managing the flood risk, there will be obvious benefits to the population, human health and material assets. Through promoting a greater understanding of flood risk, encouraging community involvement and promoting self-resilience as well as a coordinated county-wide flood risk management approach, communities and responsible parties will be better placed to effectively minimise the risk of flooding in the Leicestershire area.

There is some uncertainty regarding the scale and location of some of these positive effects. Sometimes this is because for some measures, the scale, location and/or process of implementation is currently unclear. Also, some indirect positive effects may be outside of the control of the organisations delivering measures. However, positive effects are generally likely across the implementation of the strategy, across a wide range of SEA objectives.

9.1 Recommendations

The assessment of the objectives and actions has identified a couple of areas where the LFRMS could be strengthened to promote a more sustainable approach:

- Ensure that climatic factors are fully accounted for in developments (existing and new) to ensure that flood risk management is appropriate and adaptable for the future.
- Ensure that low-carbon approaches to flood alleviation are prioritised to limit local contribution to climate change.
- Take steps to ensure a collaborative approach is taken to new development to involve all relevant stakeholders (both statutory and non-statutory) in discussions around sustainability.

Ensure that likely environmental and socio-economic impacts are considered when refining the details associated with actions relating to local flood alleviation schemes, detailed as part of Objective 4. This includes promoting opportunities for environmental enhancement where possible. The LFRMS primarily benefits SEA objectives 6 and 7 relating to population and health and material assets within Leicestershire but could also include a wider environmental focus that could help to deliver multiple benefits including to the natural and historic environment.

In order to ensure that the LFRMS does not result in adverse effects, all strategy actions should be integrated so that delivery of individual actions does not conflict with achievement of the wider strategy objectives (for example flood alleviation schemes in certain areas). Development and implementation of these actions should be effectively managed by ensuring that, where necessary, proposals are assessed to determine their potential environmental effects (positive and negative) in advance of their implementation and that appropriate mitigation measures are built into their delivery as required.

The LFRMS should seek to maximise the potential environmental benefits associated with the delivery of these objectives and measures. This can best be achieved through the integration of LFRMS objectives and through close partnership working, so that appropriate resources and funding are effectively allocated.

9.2 Monitoring

The SEA Regulations require Leicestershire County Council to monitor the significant environmental effects of the implementation of the LFRMS. Key indicators and targets that require monitoring are based on those used as part of the SEA framework, together with the main LFRMS objectives that they will help to monitor the achievement of.

The indicators and associated targets will enable the LFRMS to be monitored and any problems or shortfalls to be identified and remedied at an early stage. If failings are evident, it will be necessary for the LFRMS to be revised so that the achievement of the SEA objectives is not compromised. Of note, it is unlikely that any effects negative or otherwise will be seen immediately and that the relative time scale for monitoring will vary for each indicator/target.

Possible Monitoring partners are indicated against the SEA objectives in Table 9-1. These will be refined subject to the outcomes of the consultation process.

Table 9-1 Possible Monitoring Partners for SEA objectives

Receptor	SEA Objective		Monitoring Indicator	Target as a result of local flood risk management measures	Possible Monitoring Partners
Landscape and Visual Amenity	1	Protect the integrity of local urban and rural landscapes in the area.	Changes in the condition and extent of existing characteristic elements of the landscape. The condition and quality of new landscape features introduced to the environment (i.e. new flood defences).	No adverse impacts on landscape character of the NCAs, LCAs or other locally important landscapes/features as a result of implementation of the LFRMS.	Environment Agency Natural England
Biodiversity, Flora and Fauna	2	Maintain and enhance biodiversity, wildlife and habitat connectivity.	Area of designated nature conservation sites at risk of flooding and an assessment of the impact. Monitoring of reported conservation status of designated nature conservation sites.	No adverse impact on designated nature conservation sites as a result of changes to the current local flooding regime. No deterioration in the conservation status of designated sites as a result of implementation of the LFRMS. No adverse impact on designated nature conservation sites as a result of local flood risk management measures. Increase in the area of good wildlife habitat as a result of implementation of the LFRMS. No new impediments to fish and eel passage.	Environment Agency Natural England
Water Environment	3	Protect and enhance the quality of water features and resources.	Assessment of LFRMS options and their impact on the WFD objectives.	No deterioration to the WFD status of water bodies within the catchment as a result of implementation of the LFRMS.	Environment Agency Natural England Severn Trent Water

Geology and Soils	4	Maintain soil quality and conserve geological designations.	Area of agricultural land at risk of flooding and an assessment of the impact. The condition and quality of soils within the Council area (with emphasis on designated sites).	No reduction in the condition of geological designated sites as a result of implementation of the LFRMS. No reduction in condition of soils in designated sites within the Council area as a result of implementation of the LFRMS.	Environment Agency Natural England Internal Drainage Boards
Historic Environment	5	Preserve and where possible enhance important historic and cultural sites.	Number of designated heritage sites at risk from flooding and an assessment of the impact. Number of designated heritage sites adversely impacted upon by flood risk management measures	No adverse impact on designated heritage sites as a result of flooding. No adverse impact on the integrity/setting of designated heritage sites as a result of flood risk management measures.	Environment Agency Natural England Historic England
Population and Human Health	6	Protect and enhance human health and wellbeing.	Number of residential properties at risk from flooding	No increase in number of residential properties at risk from flooding.	Environment Agency National Health Service
Material assets and Climate Change	7	Minimise the impacts of flooding to the transport network and key critical infrastructure.	Length of road and rail infrastructure at risk from flooding. Number of key infrastructure assets at risk from flooding. Number of Green Infrastructure assets at risk from flooding or created/enhanced through implementation of the LFRMS	No increase in length of road and rail infrastructure at risk from flooding. No increase in number of infrastructure assets at risk from flooding. An enhancement of current Green Infrastructure Assets in the Council area.	Environment Agency Network Rail National Highways
	8	Minimise local and national contribution to climate change.	Carbon Footprint of proposed flood risk mitigation strategies.	Number of flood management measures implemented that will also sequester carbon.	Environment Agency Natural England

10 Next Steps

10.1 Consultation

Consultation has been undertaken with statutory consultees and stakeholders. The next stage of the SEA process (Stage D) involves consulting on the draft SEA Environmental report alongside the draft LFRMS. This consultation will be with the public to help identify any necessary amendments and updates to the documents.

All consultation responses received will be reviewed and taken into consideration for the next stage of the SEA process. This will involve the preparation of a Post-Adoption Statement, which will set out how the findings of the Environmental Report and the views expressed during the consultation period have been taken into account as the LFRMS is finalised and formally approved. The Post-Adoption Statement will also set out any additional monitoring requirements needed to track the significant environmental effects of the strategy.

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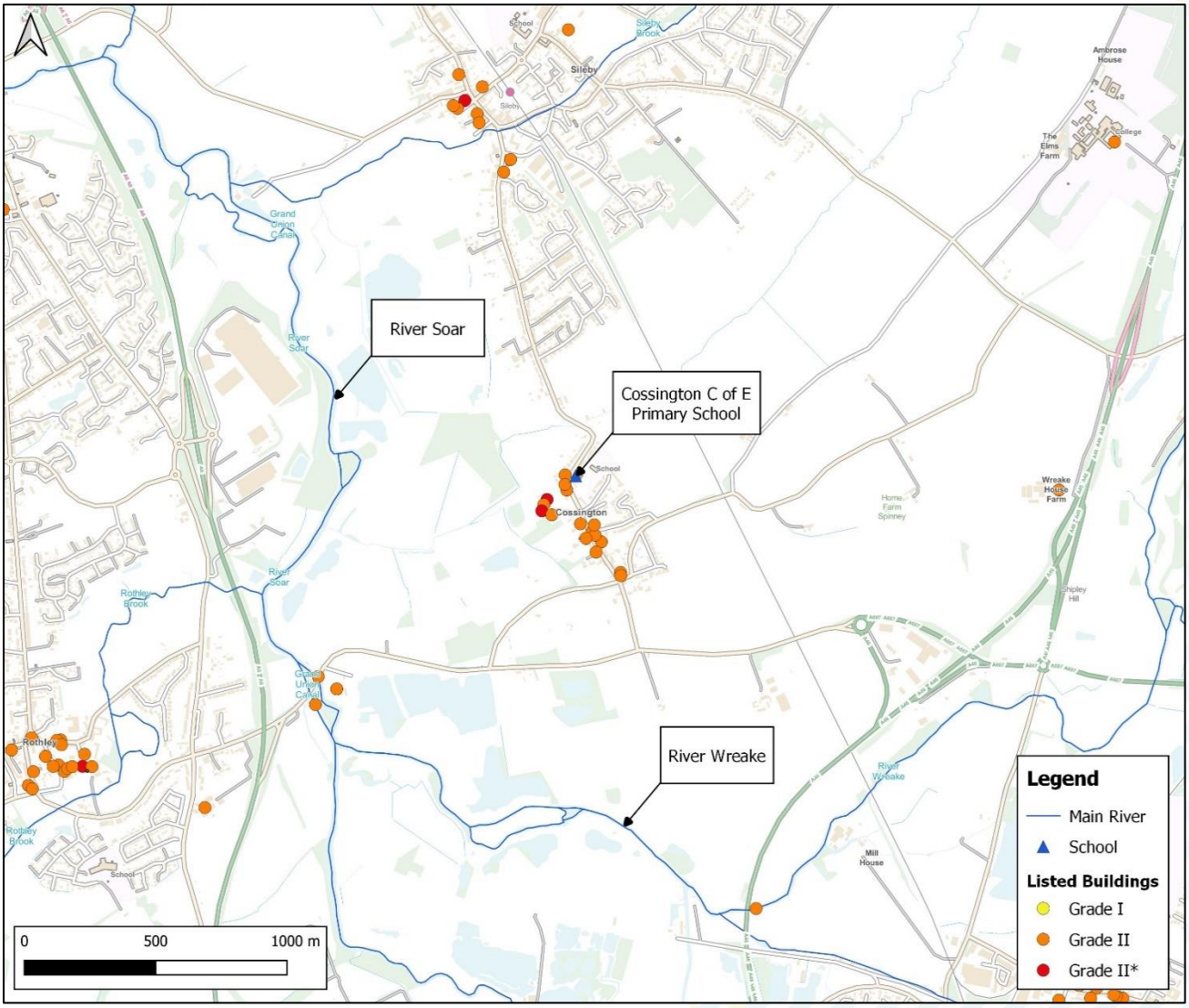
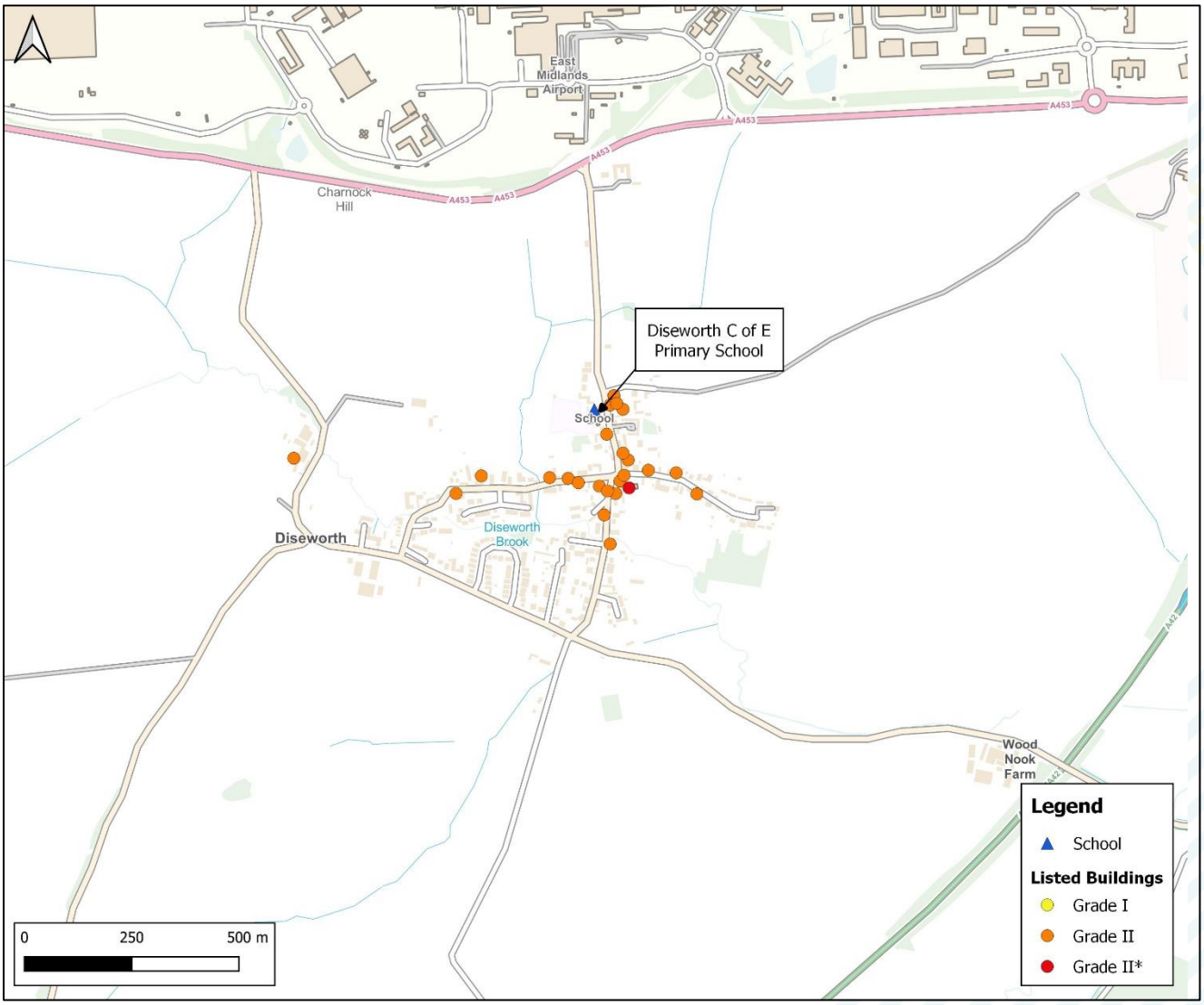
Appendices

A Maps

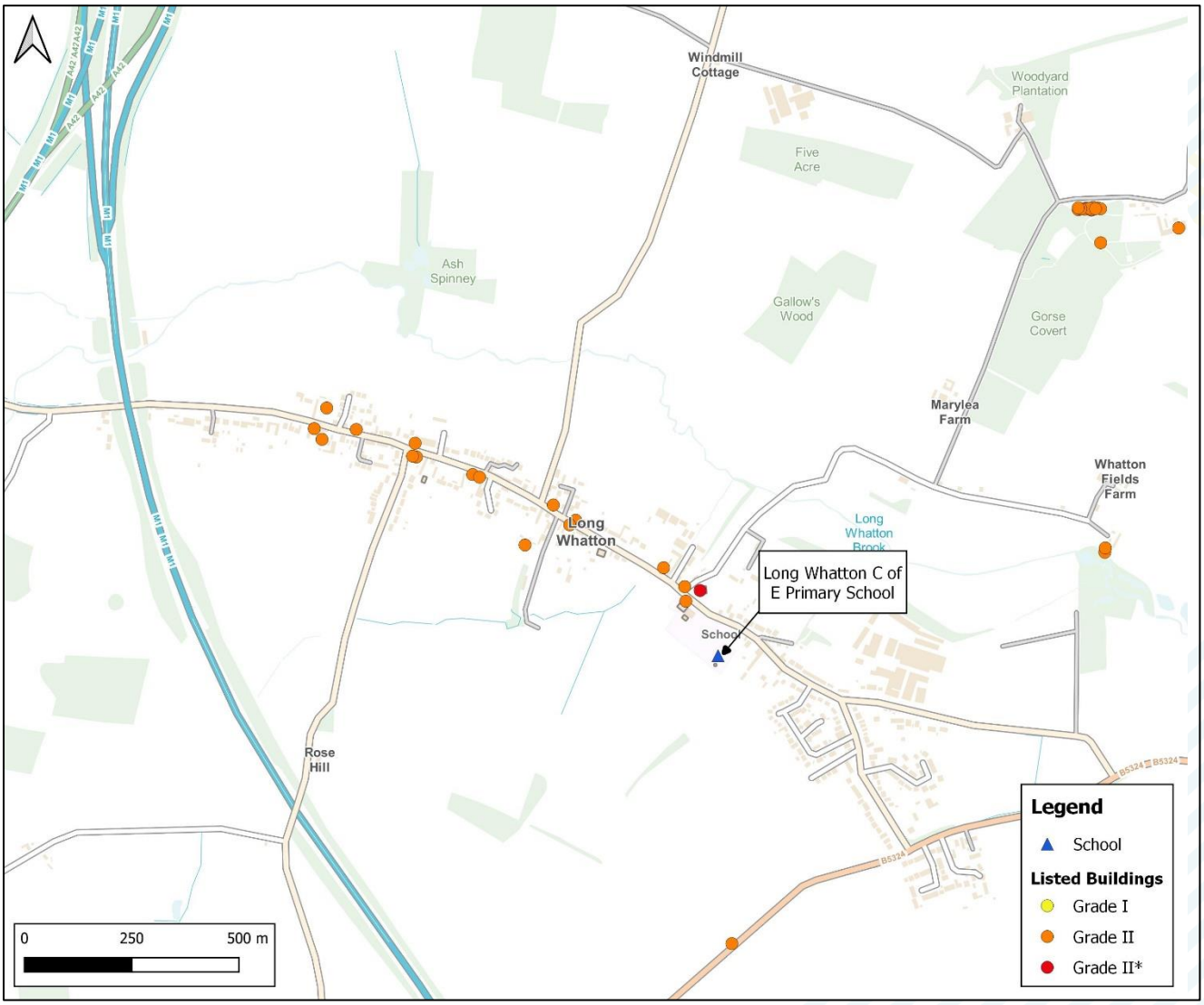
A.1 Key receptors relating to strategy actions within the settlement of Cossington



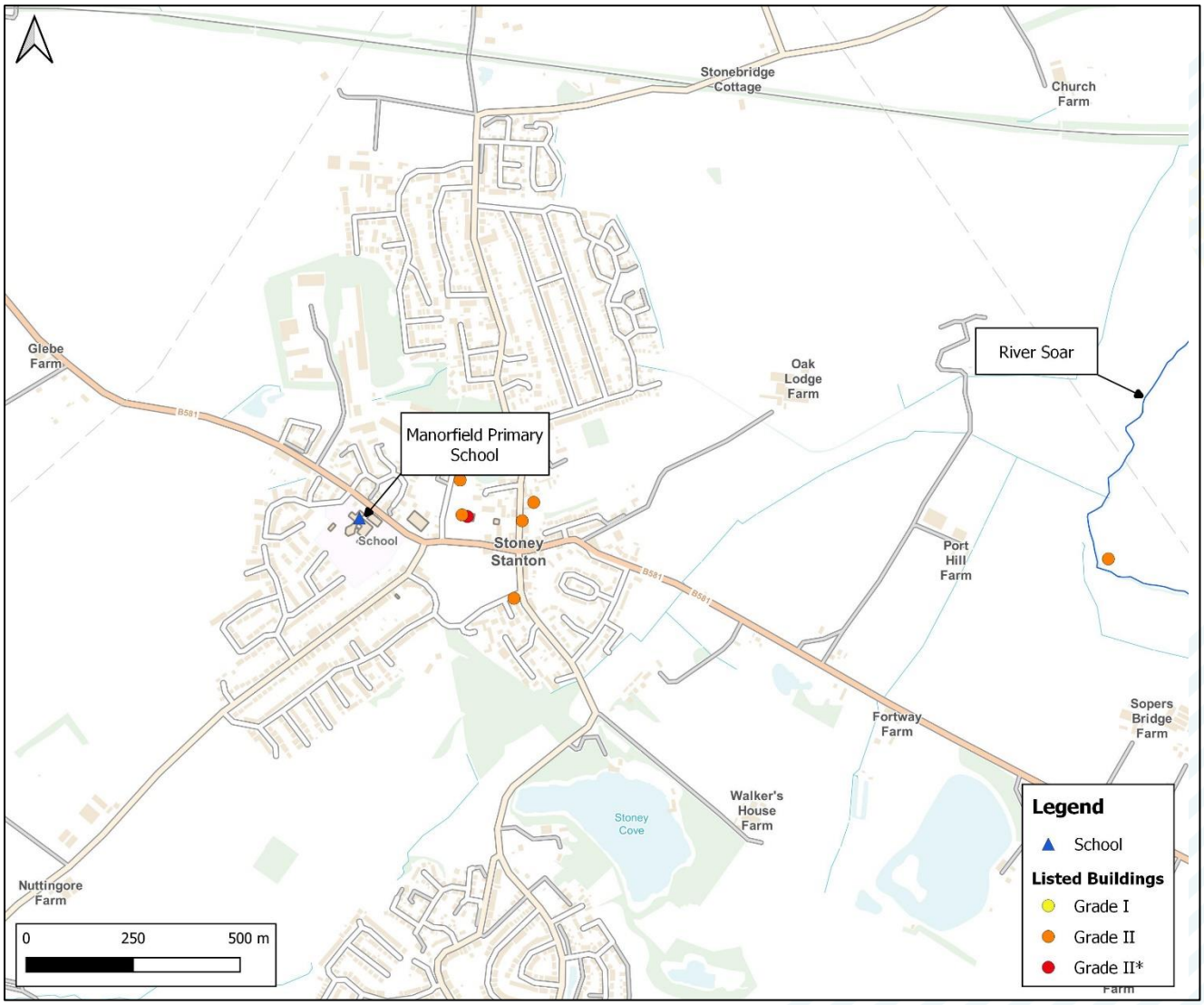
A.2 Key receptors relating to strategy actions within the settlement of Diseworth



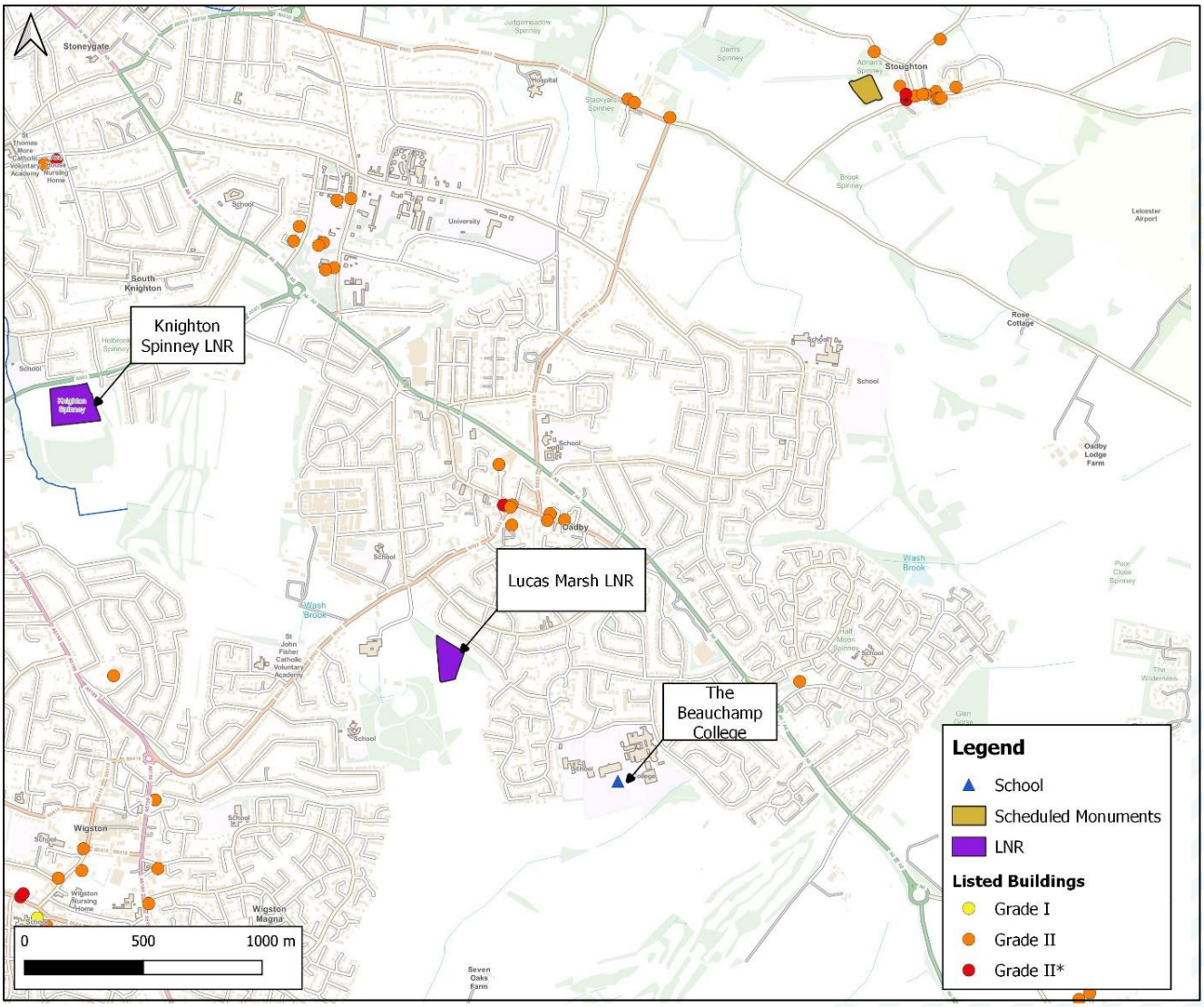
A.3 Key receptors relating to strategy actions within the settlement of Long Whatton



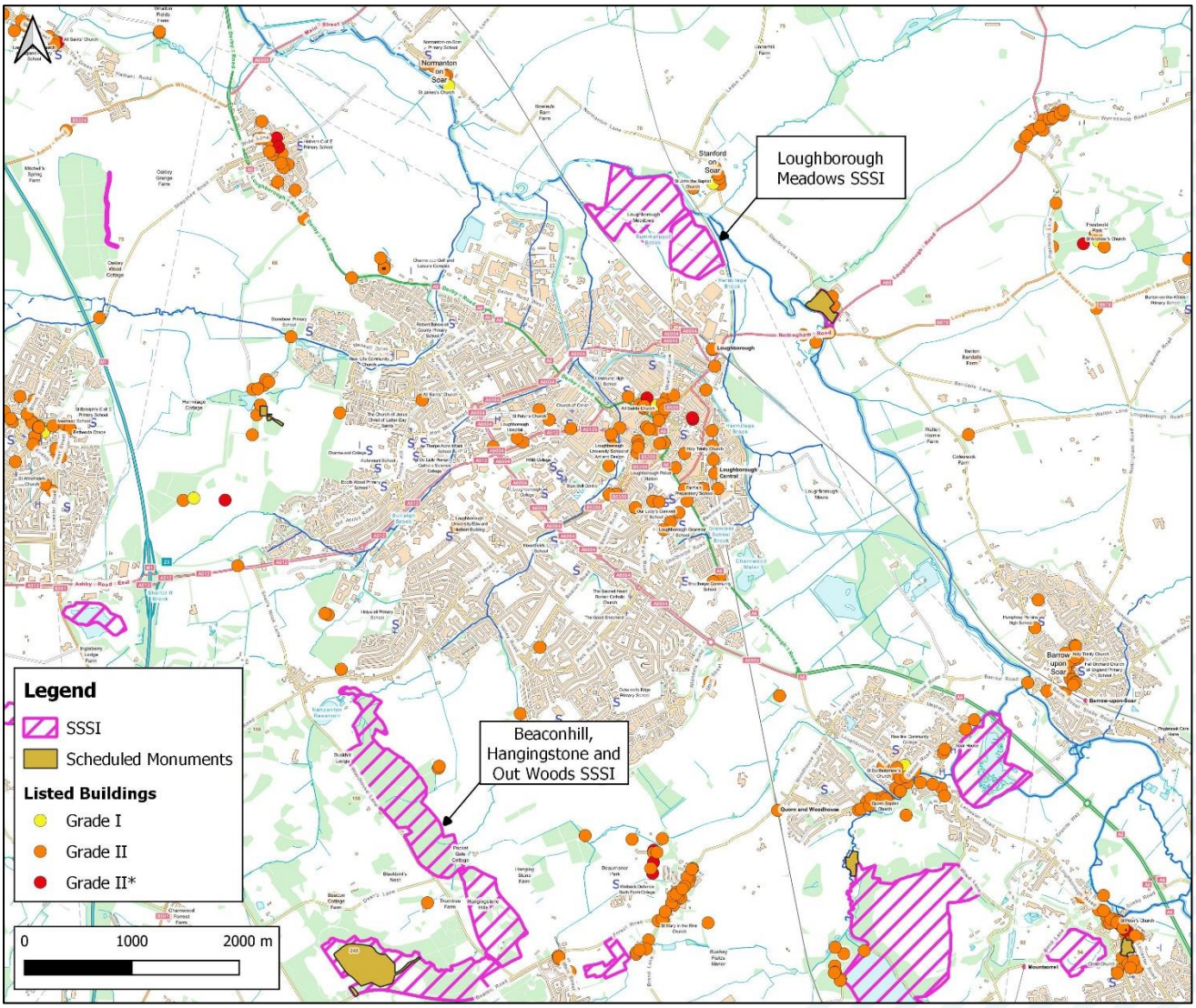
A.4 Key receptors relating to strategy actions within the settlement of Stoney Stanton



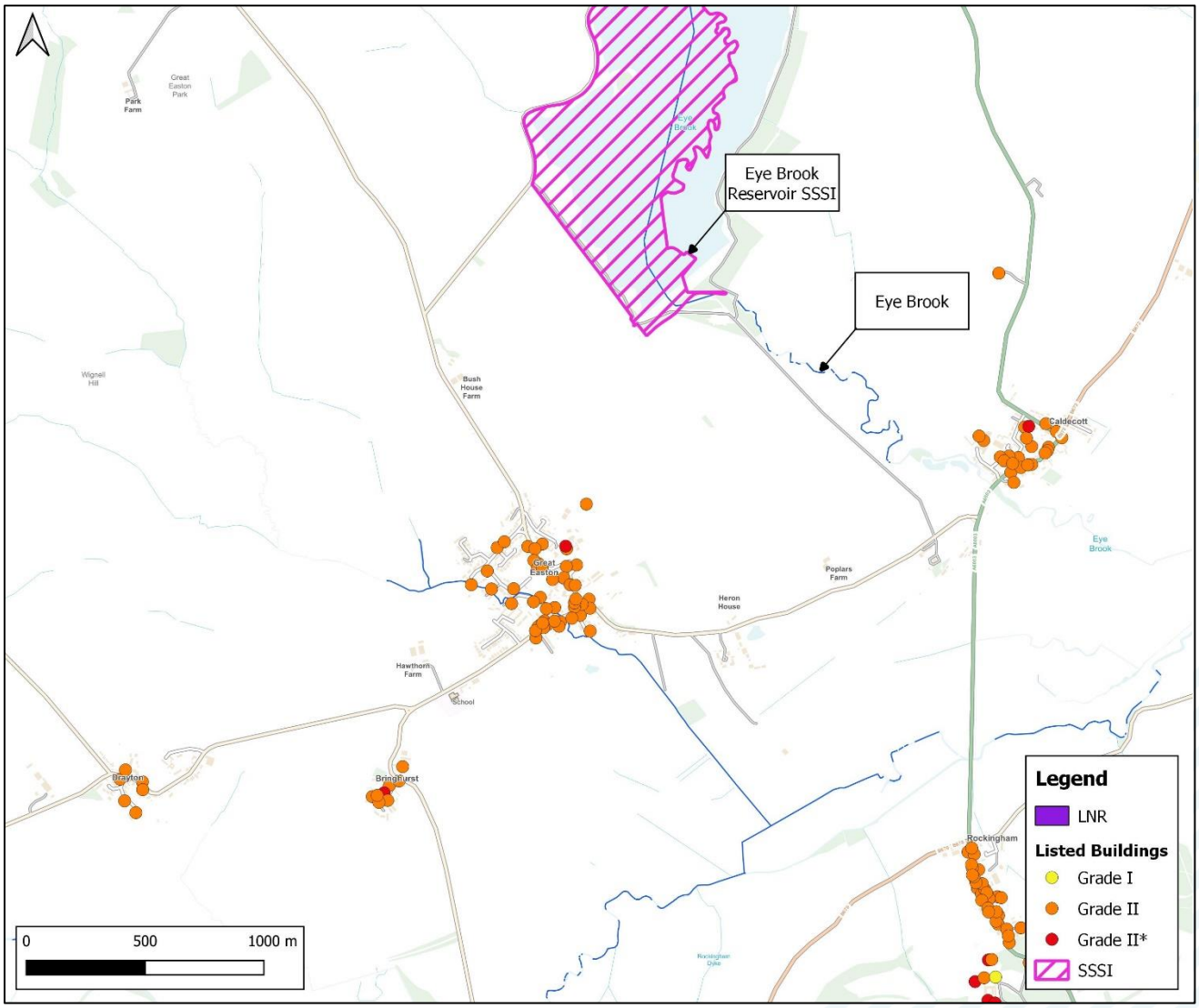
A.5 Key receptors relating to strategy actions within the settlement of Oadby



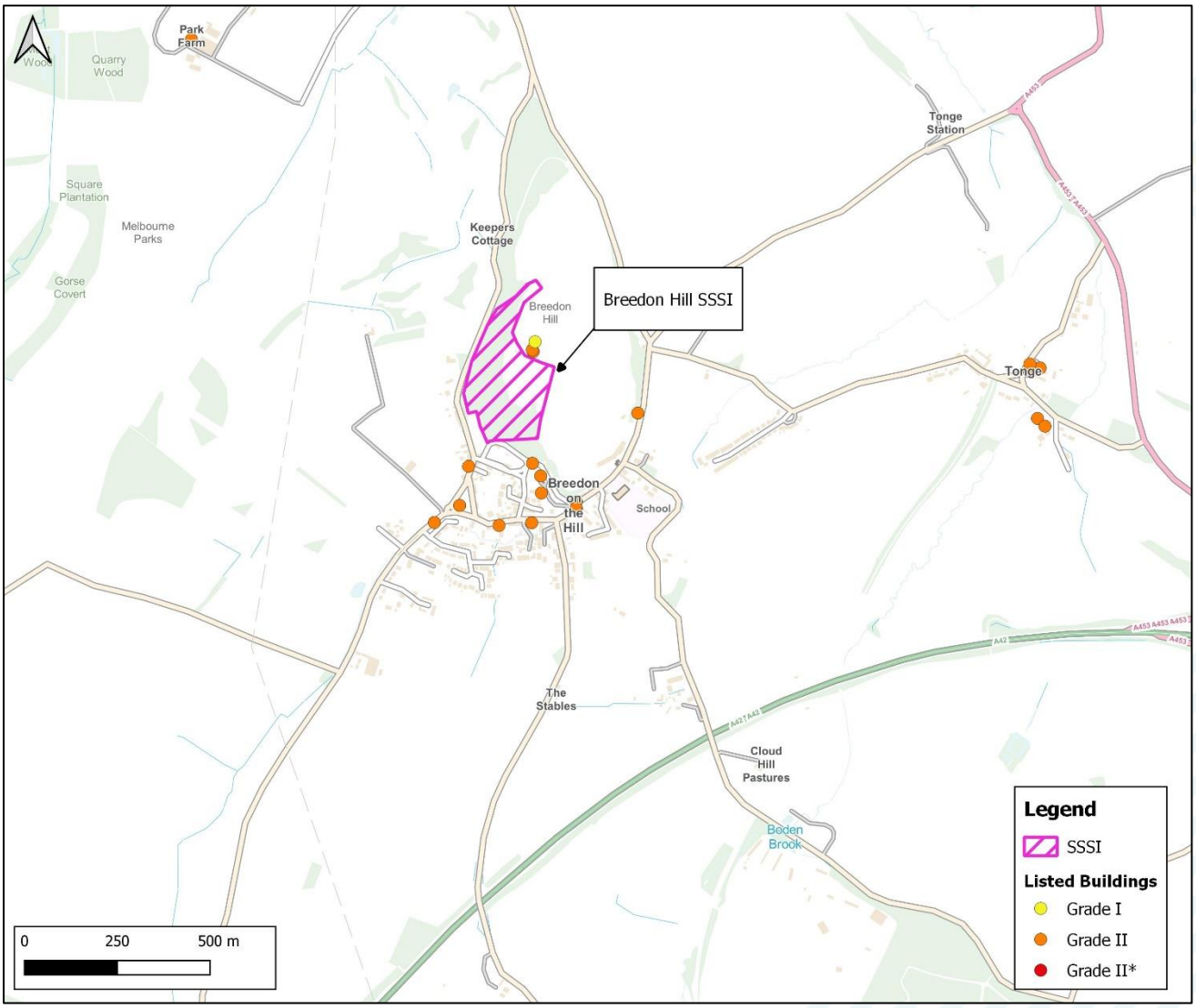
A.6 Key receptors relating to strategy actions within the settlement of Loughborough



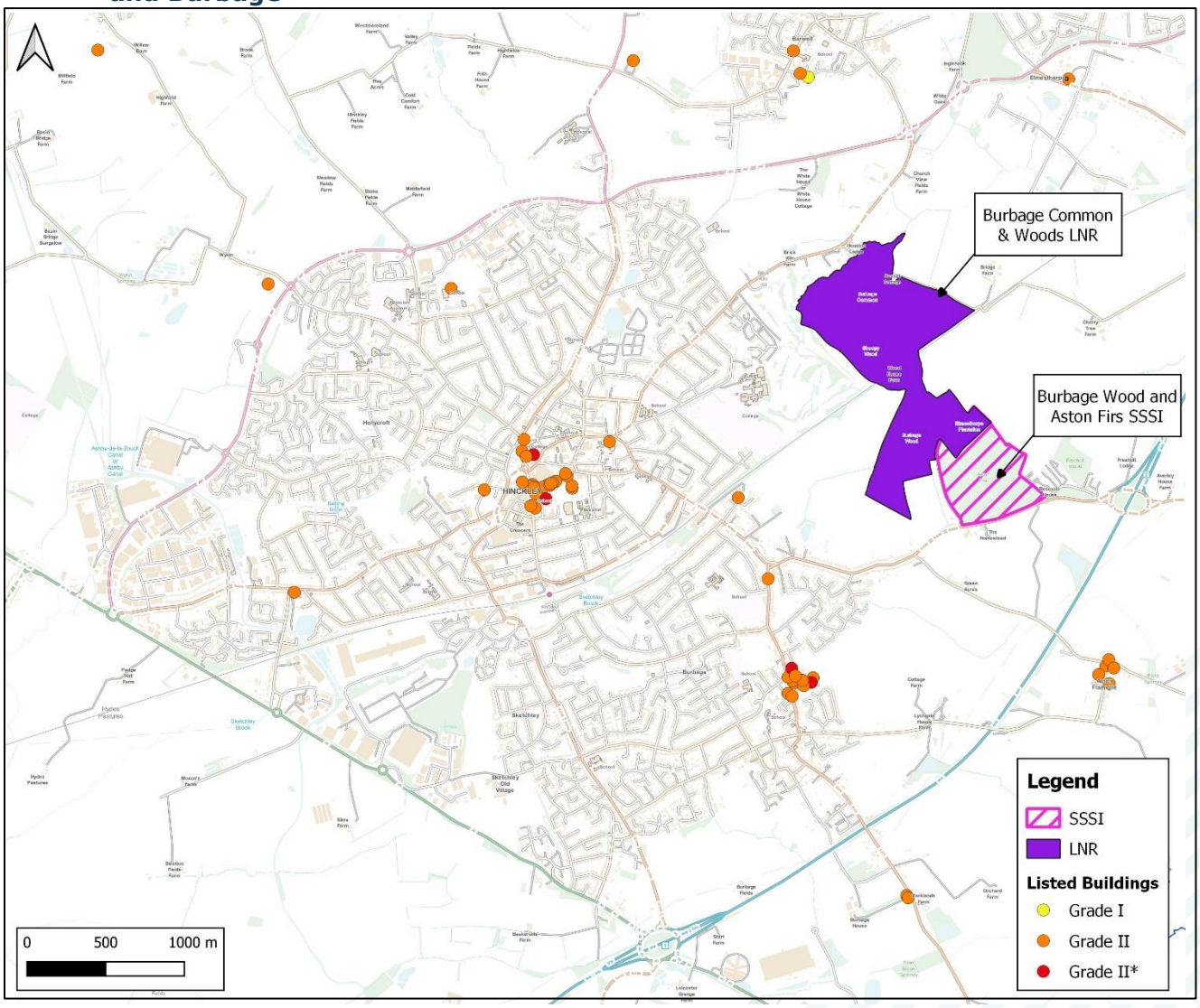
A.7 Key receptors relating to strategy actions within the settlement of Great Easton



A.8 Key receptors relating to strategy actions within the settlement of Breedon on the Hill



A.9 Key receptors relating to strategy actions within the settlement of Hinkley and Burbage



B Policy and Strategic Context

Source	Key objectives or requirements relevant to the SEA/LFRMS	Implications for SEA/the LFRMS
International		
EU Groundwater Directive	This Directive establishes specific measures as provided for in Article 17(1) and (2) of Directive 2000/60/EC (Water Framework Directive) in order to prevent and control groundwater pollution. This Directive is designed to prevent and combat groundwater pollution.	The SEA should take account of the need to maintain, protect and improve water quality across the LFRMS area.
EU Water Framework Directive	This Directive establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater. It also encourages the sustainable use of water resources. Key objectives are general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water.	The SEA should seek to promote the protection and enhancement of all water resources.
European Commission, Nitrates Directive 91/676/EEC, 1991	The Nitrates Directive is designed to reduce water pollution caused by nitrate from agriculture. The directive requires Defra and the Welsh Assembly Government to identify surface or groundwaters that are, or could be, high in nitrate from agricultural sources. Once a water body is identified as being high in nitrate all land draining to that water is designated a Nitrate Vulnerable Zone. Within these zones, farmers must observe an action programme of measures which include restricting the timing and application of fertilisers and manure and keeping accurate records.	The SEA assessment framework should include water quality.

Salmon and Freshwater Fisheries Act 1975	The Act lays down the present basic legal framework within which salmon and freshwater fisheries in England are regulated. Proposals have been made to extend the legislation to apply to more fish species e.g., coarse fish, eel and lamprey species. The Act covers legislation on fishing methods and related offences, obstructions to fish passage, salmon and freshwater fisheries administration and law enforcement. Proposed extensions to the legislation include the provision of fish passes and screening of water abstraction and discharge points for coarse fish, eel and lamprey species.	The Act Provides statutory requirements for maintaining fish passage. The SEA should seek to address any potential issues or effects on existing measures to address fish passage
National		
A Green Future: Our 25 Year Plan to Improve the Environment (2018)	The 25-Year Environment Plan sets out planned government action to deliver nature recovery. This covers several areas including climate change mitigation and adaptation, on which it outlines plans to continue to reduce greenhouse gas emissions, incorporate climate change in all policy, programme and investment decisions and implement an effective National Adaptation Programme. The Plan should help achieve targets set out in the plan including reducing risk harm environmental hazards and mitigating and adapting to climate change. The plan impacts upon clean air, clean and plentiful water, thriving plants and wildlife, using resources from nature more sustainably and efficiently and enhancing beauty, heritage and engagement with the natural	The SEA should help achieve targets set out in the 25-Year Plan, including reducing risk harm environmental hazards and mitigating and adapting to climate change. The SEA should consider its impact upon clean air, clean and plentiful water, thriving plants and wildlife, using resources from nature more sustainably and efficiently and enhancing beauty, heritage, and engagement with the natural environment.
Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations, 2019	The aim of this regulation is to designate zones in which ambient air will be protected by limiting the concentrations of pollutants within them.	The SEA should seek to ensure that the region's air quality is maintained or enhanced, and that emissions of air pollutants are kept to a minimum.

Ancient Monuments and Archaeological Areas Act, 1979 (as amended)	Under this legislation scheduled monuments are protected based on their archaeological or historical interest.	The SEA should consider how the proposed works could negatively impact Schedules Monuments and seek to mitigate or minimise these impacts.
Biodiversity 2020: A Strategy for England's Wildlife and Ecosystems, 2011	The objective of this strategy is to stop biodiversity loss, support the establishment of healthy ecosystems and create/improve nature spaces in order to benefit both people and wildlife. As well as strategising a more integrated approach to conservation, reducing environmental pressures and improving our knowledge.	The SEA could impact upon the objectives of the biodiversity strategy. This impact could be either positive or negative. Important opportunities to create or improve nature spaces should be taken where possible.
Clean Air Strategy, 2019	The Clean Air Strategy provides a way in which the UK will tackle all sources of air pollution with the main aims of making UK air healthier to breathe, protecting nature and boosting the economy.	The SEA should consider the impact it may have on air quality.
Climate Change Act, 2008	The act established a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% in 2050 from 1990 levels. The act also requirements for the government which are fulfilled by the UK climate change risk assessment and the national adaption programme report	To comply with UK legislation, the Strategy's SEA objectives should consider how to minimise greenhouse gas emissions.
Conservation of Habitats and Species Regulations (amendment- EU Exit), 2019	To ensure the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) were operable after the end of the EU transition period, changes were made by the Conservation (Natural Habitats, etc.) (Amendment) (Northern Ireland) (EU Exit) Regulations 2019.	The impacts on biodiversity and protected species and sites must be considered as part of the SEA.
Contaminated Land (England) Regulations, 2006 (as amended)	These Regulations, which apply to England only, also set out provisions relating to the identification and remediation of contaminated land under Part 2A of the Environmental Protection Act 1990.	The SEA should Include objectives relating to the identification of possible sources, pathways and receptors of contamination.

Water Act, 2014	The aim of the Act was to reform the water industry to make it more innovative and responsive to customers and to increase the resilience of water supplies to natural hazards such as droughts and floods. The Act was intended to introduce competition into the market and bring benefits to businesses and the economy.	The SEA should take account of emerging neighbouring plans where appropriate.
England Biodiversity Framework, 2008	Government strategy presenting five principles that are fundamental to conserving biodiversity during climate change. The precautionary principle underlies all the principles.	The SEA must consider the impacts on biodiversity whilst also taking into account the potential for future climate change.
Environment Act, 1995 (as amended)	The Environment Act 1995 led to the creation of a number of government agencies, including: – The Environment Agency – The Scottish Environment Protection Agency (SEPA) – The National Park authorities The Act also brought in requirements for the government to prepare strategies on air quality, national waste and hedgerow protection.	The SEA must promote the sustainable management of natural resources.
Floods and Water (Amendment- EU Exit) Regulations, 2019	These regulations aim to ensure that, following the withdrawal of the UK from the EU, legislation concerning floods and water continues to operate correctly.	The SEA should seek to ensure that flood risk in the region is not adversely affected. The SEA assessment framework should include flood risk.

Flood Risk Regulations, 2009	The Flood Risk Regulations 2009 implement the EU Flood Directive in England. They provide a framework for managing flood risk over a 6 year cycle, and require: Production of a Preliminary Flood Risk Assessment (PFRA); Identification of potential significant risk, referred to as flood risk areas (FRAs); Mapping of flood hazard and risk; and Flood Risk Management Plans, setting out measures and actions to reduce the risk. The Regulations require that each of the four elements above to be reviewed and updated where necessary, at minimum every six years.	The LFRMS needs to take local flood management strategy and the production of flood materials into consideration.
Future Water: The Government's water strategy for England, 2011	This strategy is the high level Government document which outlines how the Government wants the water sector to look by 2030, considering issues of water demand, water supply, water quality in the natural environment, surface water drainage, river and coastal flooding, greenhouse gas emissions and charging. It states that "by 2030 at the latest, we have: Improved the quality of our water environment and the ecology which it supports, and continued to provide high levels of drinking water quality from our taps Sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water Ensured a sustainable use of water resources, and implemented fair, affordable and cost-reflective charges.	The SEA should seek to ensure that the themes included in the strategy objectives are also reflected in the SEA objectives; particularly around water quality in the region, the quality of aquatic ecology, drinking water quality, resource use, energy use and greenhouse gas emissions, and adaptation to climate change.

Heritage Protection for the 21st Century, White Paper, 2007	The proposals in this White Paper reflect the importance of the heritage protection system in preserving our heritage for people to enjoy now and in the future. They are based around three core principles: Developing a unified approach to the historic environment; Maximising opportunities for inclusion and involvement; and Supporting sustainable communities by putting the historic environment at the heart of an effective planning system.	The SEA should reflect the broad objectives of this white paper.
Land Drainage Act 1991 (as amended)	The Land Drainage Act 1991 requires that a watercourse be maintained by its owner in such a condition that the free flow of water is not impeded. The riparian owner must accept the natural flow from upstream but need not carry out work to cater for increased flows resulting from some types of works carried out upstream, for example a new housing development.	The SEA/LFRMS should seek to ensure that these legislative principles are reflected.
Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network, 2010	This independent review of England's wildlife sites, networks and the connections between them sets objectives and recommendations to help achieve a healthy natural environment, to allow our plants and animals to thrive.	The SEA should seek to maintain or enhance the quality of habitats and biodiversity
Making Space for Water – taking forward a new Government strategy for flood and coastal erosion risk management in England, 2005	This strategy outlines how to manage the risks from flooding and coastal erosion in the UK. Moreover, the strategy aims to reduce the threat of flooding to people and their property, and to deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.	The SEA should seek to ensure that flood risk in the region is not adversely affected.

National Planning Policy Framework (2021)	Sets the Government's planning policies for England and how they should be applied, providing a framework within which locally prepared plans for housing and other development can be produced. This framework must be taken into account when preparing the development plan alongside international obligations and statutory requirements.	The SEA should consider the planning policies contained within the NPPF and take them, and their objectives, into account in identifying a preferred option.
Natural Environment and Rural Communities (NERC) Act, 2006	The Act establishes an independent body – Natural England – responsible for conserving, enhancing and managing England's natural environment for the benefit of current and future generations. The Act makes provision in respect of biodiversity, pesticides harmful to wildlife and the protection of birds, and in respect of invasive non-native species. It alters enforcement powers in connection with wildlife protection and extends time limits for prosecuting certain wildlife offences.	The SEA should Include objectives relating to increased access to rural areas and to the minimisation of impacts to the environment.
Planning (Listed Buildings and Conservation Areas) Act 1990	This document ensures that when making a decision on a planning application for development that affects a listed building or its setting, a local planning authority must have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.	The SEA objectives should seek to mitigate to minimise impacts to listed buildings.

Safeguarding our Soils – A strategy for England, 2009	The strategy outlines the Government's approach to safeguarding our soils for the long term. It provides a clear vision to guide future policy development across a range of areas and sets out the practical steps that we need to take to prevent further degradation of our soils, enhance, restore and ensure their resilience, and improve our understanding of the threats to soil and best practice in responding to them. The Governments vision is that: By 2030, all England's soils will be managed sustainably, and degradation threats tackled successfully. This will, therefore, improve the quality of England's soils and safeguard their ability to provide essential services for future generations.	The SEA should seek to ensure that the quality of the regions soils and their management is protected or enhanced.
Securing the Future – the UK Government Sustainable Development Strategy, 2005	This strategy for sustainable development aims to enable all people to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations. Also, this strategy places a focus on protecting natural resources and enhancing the environment.	The SEA must seek to ensure that objectives relating to sustainable development, sustainable resource use and protecting the natural environment, are considered when assessing the potential impacts of the LFRMS.
The Carbon Plan, 2011	The Carbon Plan is a Government wide plan of action on climate change, including domestic and international activity. It sets out department by department actions and deadlines for the next five years. The plan represents on-going and planned cross-Government action on climate change with specific deadlines providing for both internal accountability and public transparency. The three main objectives are: Transforming the generation of energy by moving towards low carbon alternatives Changing the way how buildings are heated by better insulation the use of low carbon energy alternatives Changing the transportation sector by means of better public transport, reducing emissions from petrol and diesel engines and moving towards alternative technologies such as electric vehicles.	The SEA should include objectives that would promote the reduction of emissions from National Networks and transformation to a low carbon economy; The SEA should include objectives for reducing the generation of waste; Finally, the SEA should include objectives for protecting the natural environment.

The Environment Act, 2021	The Environment Act has been implemented with the intention of protecting and enhancing the environment for future generations. The act brings many of the objectives in the 25-year environment plan into UK law, setting legal targets to halt species declines and implementing laws to ensure water companies deliver reductions in the frequency of sewerage discharges. Under the Environment Act, local nature recovery strategies for areas in England are to be implemented. These are to be prepared by the responsible authority to include a statement of biodiversity priorities for the strategy area. This includes a description of the opportunities for recovering or enhancing biodiversity in terms of habitats and species in the strategy area, and the priorities, in terms of habitats and species, for recovering or enhancing biodiversity.	The act's aim of halting nature decline is particularly relevant to the Plan which has the potential to impact upon nature either positively or negatively depending upon the options chosen. The integration of 'softer' solutions that look to work with nature where possible could see the study contribute towards nature recovery and enhancement, as required under Local Nature Recovery Strategies, such as providing insight as to the potential of natural flood management, green/blue infrastructure SuDS and nature-based solutions.
The National Flood and Coastal Erosion Risk Management Strategy for England, 2020	This strategy's long-term vision is for: a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100. It has 3 long-term ambitions, underpinned by evidence about future risk and investment needs. They are: Climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change Today's growth and infrastructure resilient in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilient to flooding and coastal change a nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change, and know their responsibilities and how to take action.	The LFRMS is being updated in accordance with this strategy, and the SEA should consider how the LFRMS may affect flood risk across the region.

The Flood and Water Management Act, 2010	The Flood and Water Management Act 2010 requires flood and coastal erosion risk management authorities to aim to contribute towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions. A review was recently undertaken for the implementation of Schedule 3 of the Flood and Water Management Act. This review included identification of the benefits and impacts of making SUDs mandatory for new development to ensure that its implementation will help address the pressures of climate change, increasing population and urbanisation whilst achieving multiple benefits, such as reducing surface and sewer flood risk, improving water quality and harvesting rainwater to meet current and future needs. The conclusion of the review recommended that Schedule 3 be implemented subject to final decisions on scope, thresholds and process, which the government accepted.	The requirement for the LFFA to produce an LFRMS is stipulated by the Flood and Water Management Act. Under the recently approved Schedule 3, once implemented, it will be a requirement for the LLFA to include SuDs. The SEA should take account of this requirement in assessment of the LFRMS.

The National Flood Emergency Framework for England, 2011 (as amended)	This Framework sets out the government's strategic approach to achieving the aims set out below and is intended for use by all those involved in planning for and responding to flooding from: • The sea • Rivers • Surface water • Groundwater and • Reservoirs The purpose of this Framework is to: Ensure delivery bodies understand their respective roles and responsibilities Give all players in an emergency flooding situation a common point of reference - bringing together information, guidance and key policies in a single planning document Establish clear thresholds for emergency response arrangements Place proper emphasis on the multi-agency approach to managing flooding events provide clarity on the means of improving resilience and minimising the impact of flooding events provide a basis for individual responders to develop and review their own plans and be a long-term asset that will provide the basis for continuous improvement in flood emergency management.	The LFRMS and SEA should take of account of the need to respond to flooding from all listed sources. The LFRMS and SEA should ensure that the responsibilities of LCC are reflected.
Water for Life, Water White Paper, 2011	This sets out market reform in the water sector.	The SEA should take into account the contents of this paper.
Water for People and the Environment, Water Resources Strategy for England and Wales, 2009	This strategy covers the actions that the Environment Agency believes need to be taken to ensure that there is enough water for people and wildlife in the face of future pressures. These include: • climate change • population growth • diffuse pollution • water for wildlife and wetlands	The SEA should seek to ensure that strategy objectives are also reflected in the SEA objectives, particularly around water resource use and availability in the Leicestershire region.

Wildlife and Countryside Act 1981 (as amended)	The Act is the principal mechanism for providing legislative protection of wildlife in Great Britain. Species listed in Schedule 5 of the Act are protected from disturbance, injury, intentional destruction or sale. Other provisions outlaw certain methods of taking or killing listed species. This Act is brought up to date regularly to ensure the most endangered animals are on the schedule. The Act also improved protection for the most important wildlife habitats.	Some aspects of the LFRMS may have effects on habitats and species. The SEA should seek to maintain or enhance the quality of habitats and biodiversity and take regard of protected species and habitats.
Regional		
Anglian Water: Draft Drainage and Wastewater Management Plan, (DWMP) 2022	The draft Anglian DWMP Outlines the regions adaptive plan to meet the challenges we face over the next 25 years. It is anticipated that publication of the DWMP will be in March 2023. It sets out a strategic direction for their approach to minimise and to minimise risks. The plan intends to Take a catchment-based approach to these risks and challenges faced. Promote the use of nature-based solutions, especially when it comes to surface water removal. Protect the environment through improvements to our discharges. Demonstrate how they will serve our growing population over the next 25 years. Show what's needed to protect assets and customers from the impacts of heavy rainfall caused by climate change. Identify opportunities for partnership working to release benefits and resolve risks through matched funding. Align with our other strategic plans, such as the Long Term Delivery Strategy (LTDS), Water Resources Management Plan (WRMP), Water Resources East (WRE) Regional Plan, Flood Risk Management	The LFRMS should reflect the broad objectives of these plans. The SEA objectives should reflect the need to manage water resources on a catchment basis in a sustainable manner.

	Plans (FRMPs), River Basin Management Plans (RBMP) and Local Plans. Include all water recycling customers, regardless of who serves their water. Exclude upstream water supply and downstream resources, which will be reviewed separately through the business plan.	
Severn Trent: final Drainage and Wastewater Management Plans, 2023	The strategic direction statement contained within the draft plan has set out eight priorities: - Guarantee future water supplies - Ensure water is used wisely - Deliver a high quality, affordable service - Lower the risk of flooding and pollution - Protect and enhance our environment - Support a more circular economy - Make a positive social difference - Maintain a safe, inclusive, and fair workplace. As well as three key strategic outcomes (and associated targets) in summary these are: - Lower the risk of flooding and pollution - Protect and enhance the environment - Support a more circular economy (Carbon Net Zero)	
Humber River Basin District River Basin Management Plan, 2022 Anglian River Basin District River Basin Management Plan, 2022	The purpose of a river basin management plan is to provide a framework for protecting and enhancing the benefits provided by the water environment.	The LFRMS should consider baseline classification of water bodies and statutory objectives for protected areas. The SEA

Severn River Basin District River Basin Management Plan 2022	To achieve this, and because water and land resources are closely linked, it also informs decisions on land-use planning. This plan contains 4 sets of information that groups who manage land and water should pay particular attention to: Baseline classification of water bodies - One of the main purposes of this plan is to prevent water bodies deteriorating. Statutory objectives for protected areas - This plan highlights the areas of land and bodies of water that have specific uses that need special protection Statutory objectives for water bodies - This plan sets out legally binding objectives for each quality element in every water body, including an objective for the water body as a whole. Summary programme of measures to achieve statutory objectives - This plan provides a framework for action and future regulation.	objectives should should consider these objectives.
Severn Trent: Water Resources Management Plan, 2019	This WRMP explains technical assessments and modelling used to explore the future potential risks to the water supply / demand balance. The plan sets out how Severn Trent Water will meet these future challenges, and what steps we believe are needed over the coming years to maintain security of water supplies for our current and future customer In broad terms, the plan aims to respond to these challenges by: Preserving current level of resilience against droughts; Tackling unsustainable abstraction and prevent future environmental deterioration; Appropriately planning for climate change; Meeting future population growth; Improving resilience of customers' supplies; Meeting customers' and stakeholders' needs and expectations; Meeting wider regulatory obligations; and Understanding and allowing for future uncertainty	The LFRMS should reflect the broad objectives of these plans. The SEA objectives should reflect the need to manage water resources on a catchment basis in a sustainable manner.

Soar Catchment Management Plan, 2018	The Soar catchment partnership outlined several key objectives: Enhance Biodiversity and Natural Processes Support Sustainable Flood Risk Management Work with Disadvantaged Communities Promote Rural Livelihoods Strengthen Community Involvement and Recreation Improve Water quality	
Tame, Anker and Mease Catchment Plan, 2020	Catchment objectives are provided under the overall vision 'To protect and improve the quality, diversity, and resilience of the water environment within the Tame Anker and Mease catchment for the benefit of people and wildlife' The overall objective of the plan is to improve WFD elements to help achieve specific catchment WFD objectives Also, to improve the management of the wider environment including: Wildlife and habitat Flooding Greening the grey Deliver the River Mease Restoration Plan	
Welland Catchment 5 Year Plan, 2020	The aims for this plan are: 1. To develop a direction for the WVP over the next five years 2. To ensure the WVP is best placed to win funding for future projects	

River Mease SSSI/SAC Restoration Plan, 2012	The aim of this restoration plan is to identify river restoration or enhancement actions that can address physical modifications to the River Mease SSSI/SAC which contribute to unfavourable condition. This includes the following objectives: 1. Determine the impact of physical modification. 2. Provide an outline restoration plan for the river on a reach-by-reach basis. 3. Identify potential delivery mechanisms.	The LFRMS should reflect the broad objectives of these Plans – particularly where it pertains to wider water quality issues.
River Welland Catchment Flood Management Plan, 2009	The Catchment Flood Management Plan aims to aim to promote more sustainable approaches to managing flood risk. The policies identified in the Catchment Flood Management Plan will be delivered through a combination of different approaches	The LFRMS should reflect the broad policy approach of these Plans.
Local		
Charnwood Borough Council Level 2 Strategic Flood Risk Assessment (2021)	The purpose of the Strategic Flood Risk Assessment is to provide additional flood risk analysis for site options, assisting the preparation of the Local Plan.	Strategic policies should consider the cumulative impacts in, or affecting, local areas susceptible to flooding.
Hinckley and Bosworth Borough Council Strategic Flood Risk Assessment (2020)	The Level 2 LFRMS considers potential sites to determine which sites are at highest risk of flooding and consider the cumulative impact of development.	
Hinckley and Bosworth Borough Council, Blaby District Council and Oadby & Wigston Borough Council Strategic Risk Assessment (2014)	The purpose of this document is to provide a detailed assessment of any flood hazard within the Flood Zones, and provide information on existing defences and flood risk management measures.	
Melton Borough Council Strategic Flood Risk Assessment (2015)	The purpose of the SFRA is to provide evidence to inform the Council's choice of allocations and policies. The SFRA will be used in decision making on planning applications.	

North West Leicestershire District Council Strategic Flood Risk Assessment (2015)	The objective of the assessment is to inform the Local Planning Authority to prepare appropriate policies for the management of flood risk, and identify the detail needed for site-specific flood risk assessments and consider emergency planning capability.	
Leicestershire County Council's Strategic Plan 2022-2026	Leicestershire County Council has developed strategic outcomes essential for a good quality of life in Leicestershire. These are: Great Communities – Leicestershire's communities are prepared for and resilient to emergencies, diversity is celebrated, people support each other through volunteering, and cultural and historical heritage are enjoyed and conserved. Safe and Well – People are safe in their daily lives, enjoy long lives in good health and those at most risk are protected from harm. Strong Economy, Transport and Infrastructure – Leicestershire has the infrastructure for sustainable economic housing and growth, it is an attractive place where businesses invest and flourish, economic growth delivers increased prosperity for all, and there is close alignment between skill supply and demand. Improved Opportunities – Young people and adults are able to aim high and reach their full potential, families are self-sufficient and enabled to be resilient, and every child has access to good quality education. Clean and Green – Nature and the local environment are valued, protected and enhanced, resources are used in an environmentally sustainable way, people act now to tackle climate change, and the economy and infrastructure are low carbon and environmentally friendly.	The SEA/LFRMS should reflect the broad outcomes of the strategic plan.

Leicester and Leicestershire Strategic Growth Plan 2018-2050	The Strategic Growth Plan has been prepared by ten partner organisations in Leicester & Leicestershire. The plan sets out how the area is planning to accommodate future growth and the proposed areas for growth. Coalville has been identified as an area of managed growth. The Leicestershire International Gateway in the North of the District, has also been identified as a secondary growth area.	The SEA should consider and incorporate the strategic direction and principles of the growth plan. The LFRMS should consider where future growth and proposed areas for growth are affected.
Landscape Sensitivity and Green Infrastructure Study for Leicester and Leicestershire, 2017	The Landscape Sensitivity and Green Infrastructure (GI) Study provides evidence to help ensure that locations identified for economic and housing development conserves and enhances landscape, biodiversity and green infrastructure. To take this work forward several objectives are suggested: Embed GI in Local Plans in a coordinated way Use the mapped GI assets and opportunities to guide future development Explore funding options and payments for ecosystem services The report identifies areas of North West Leicestershire have generally poorer living environment than other areas, and the delivery of high quality green infrastructure alongside new development has the greatest potential impact on health and well-being in these areas.	The SEA should reflect these broad components of the study.
The Space for Wildlife: Leicester, Leicestershire and Rutland Biodiversity Action Plan (LLRBAP), 2016	'Space for Wildlife' has three components: 1. To promote the restoration, management and creation of BAP Priority Habitats 2. To promote the creation of new wildlife habitat in the wider countryside 3. To survey, monitor and promote favourable management of existing good sites through the Local Wildlife Sites system.	The SEA should reflect these broad components of the biodiversity action plan.

Loughborough Surface Water Management Plan, 2013	This SWMP outlines the preferred strategy (or strategies) for the coordinated management of surface water flood risk within Loughborough.	The SEA/LFRMS should reflect on the rationale for this SWMP and the detailed need to understand and address surface water flooding issues in the wider study area.
Market Harborough Surface Water Management Plan, 2020	The key objectives of this SWMP, relevant to the LFRMS are: Enhance the understanding of local flood risk; Establish the areas at significant risk of flooding; Aid in understanding flood mechanisms – ascertain interconnectivity Identify mitigation options (including taking account of climate change)	The SEA/LFRMS should reflect on the rationale for this SWMP and the detailed need to understand and address surface water flooding issues in the wider study area.
Appleby Magna Natural Flood Management Scoping Study, 2021	The study revealed that wider benefits such as water quality improvement and habitat gains can be achieved if NFM measures are implemented in combination across the catchment (River Mease SSSI/SAC).	The SEA/LFRMS should reflect NfM application across the study area's catchments.
High-level Strategic Natural Capital Study of Leicester and Leicestershire, 2021	A key recommendation(s) aligned with policy analysis: Identify areas where there are opportunities to improve the condition of habitats or change habitat types so that natural capital can assist with addressing existing environmental issues (such as air pollution or flood risk);	The SEA/LFRMS could reflect on natural capital approaches for flood risk.
Leicestershire Equality Strategy (2020)	The council's Equality Strategy sits alongside the council's strategic plan five outcomes in ensuring equality via: A strong economy Wellbeing and opportunity Keeping people safe Great communities Affordable and quality homes	The SEA/LFRMS should seek to align with the councils five strategic equality outcomes where relevant.

Leicestershire's Joint Health and Wellbeing Strategy, 2019	A key theme of the strategy is the commitment of access to green space 'We will work with partners to ensure high quality new and current housing that has access to green space and supports good health and wellbeing' 'We will collaborate with the Leicestershire planning system and developers to explore a new approach to the design of our residential, employment and town centre environments to increases active travel, green infrastructure'	The SEA should aim to include objectives that complement the priorities and principles of this strategy.
Leicestershire Environment Strategy, 2018-2030	Out of the five desired outcomes aligned with wider Leicestershire strategy there is one interrelated area where the strategy contributes (and is relevant to the LFRMS/SEA). By taking action to mitigate and adapt to climate change and therefore contribute to reducing the risk of harm to people from climate change for example flooding and heatwaves. For wider environmental issues: Climate change - Support our responsibilities as the Lead Local Flood Authority.	The strategy understands flooding and climate change to be priority strategic areas. The SEA/LFRMS needs to take account of the proposed
Improving Air Quality and Health across Leicestershire, 2020-2023	The Air Quality action plan acknowledges one particular priority – with relevance to the LFRMS/SEA: Guidance and frameworks should be developed with and for planners to support measures to improve air quality and identify and address developments which may worsen air quality.	The SEA/LFRMS should consider the impact that it will have on air quality.

Nutrient Neutrality Advice 2022 (Defra, Department for Levelling Up, Housing and Communities, Natural England)	The government issued a ministerial statement by George Eustice (Secretary of State for Environment, Food and Rural Affairs) on 20th July 2022. It sets out that the government will: Place a legal duty on water companies to upgrade wastewater treatment works by 2030 in nutrient neutrality areas Require Natural England to establish and deliver a Nutrient Mitigation Scheme	The SEA should account for how this advice impacts future plans and projects within the River Mease catchment area.
Net Zero Leicestershire Strategy 2023 – 2045 (Leicestershire County Council)	Leciestershire's Net Zero Strategy outlines an action plan to help Leicestershire realise their net zero ambitions and a series of goals to achieve.	The SEA should consider how measures proposed in the LFRMS will contribute to the achievement of carbon reduction goals.

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