

Lincolnshire County Council
Minerals and Waste Local Plan Review

Sustainability Appraisal (SA): Scoping Report

June 2022

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Glossary of Acronyms

AA	Appropriate Assessment
ALC	Agricultural Land Classification
AQMA	Air Quality Management Area
DCLG	Department for Communities and Local Government
DPD	Development Plan Document
EA	Environment Agency
EC	European Commission
EU	European Union
Ha	Hectare
HE	Historic England
HRA	Habitats Regulations Assessment
LAA	Local Aggregate Assessment
LB	Listed Building
LCA	Landscape Character Assessment
LPA	Local Planning Authority
MPA	Minerals Planning Authority
MSA	Minerals Safeguarding Area
NE	Natural England
NPPF	National Planning Policy Framework
OA(H)N	Objectively Assessed (Housing) Need
PDL	Previously Developed Land
NPPG	National Planning Practice Guidance
PRoW	Public Right of Way
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SM	Scheduled Monument
SPA	Special Protection Area
SSSI	Site of Specific Scientific Interest
SuDS	Sustainable Drainage System
UK	United Kingdom
WPA	Waste Planning Authority

1. Introduction

1.1 Background

On behalf of Lincolnshire County Council (LCC), consultants Place Services have been commissioned to undertake an independent Sustainability Appraisal (SA), incorporating Strategic Environmental Assessment (SEA) for the LCC Minerals and Waste Local Plan Review.

1.2 The LCC Minerals and Waste Local Plan Review

A Minerals and Waste Local Plan Review (referred to hereafter as ‘the Plan review’) is being undertaken by LCC in accordance with and under the provisions of Regulation 10A of the Town and Country Planning (Local Planning) (England) (Amendment) Regulations 2017 which sets out that reviews at least every five years are a legal requirement for all local plans. This is supported by Paragraph 33 of the NPPF (2019), which states (inter-alia) that,

‘Policies in local plans and spatial development strategies should be reviewed to assess whether they need updating at least once every five years and should then be updated as necessary. Reviews should be completed no later than five years from the adoption date of a plan and should take into account changing circumstances affecting the area, or any relevant changes in national policy.’

The Lincolnshire Minerals and Waste Local Plan (LMWLP) was adopted in June 2016 and provides planning policies for minerals development and waste management in Lincolnshire until 2031. It sets a policy framework within which the best possible use of finite resources can be made and ensures that the most viable approach to managing waste is taken, through the allocation of sites for both future mineral extraction and waste management. The LMWLP contains policies promoting recycling and secondary processing, the safeguarding of resources and facilities, and high-quality site restoration, all in the pursuit of sustainable development.

1.2.1 The Review Process to Date

The Plan review initially focuses on an evidence-led assessment to determine whether the policies of the adopted 2016 LMWLP need updating and will subsequently conclude either that the policies do not need updating, or that one or more policies do need updating, (and publishing the reasons for this).

The Plan review was published in February 2021, documents the process as required by the aforementioned planning regulations, and provides a justification for the proposed amendments to the LMWLP. More specifically, the report sets out:

- Details of the obligations for the review itself and how the review has been carried out,
- A broad overview of relevant drivers of change, including; updates to the National Planning Policy Framework (NPPF) and National Planning Practice Guidance since the Minerals and Waste Local Plans adoption in 2016, relevant changes to government policy and legislation, emerging neighbouring Minerals and Waste Local Plans and District Council Local Plans,

- The review itself assesses each policy within the 2016 Plan, providing each with a performance rating based against the relevant indicators of success. This form of assessment allows for the development of 'issues' that the plan is yet to deal with. These will form the main basis for modifications within the emerging review of the Local Plan.

2. Sustainability Appraisal (SA)

2.1 The Requirement for Sustainability Appraisal

2.1.1 Legislative Requirements

The legislative requirement for Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) emanates from a high level national and international commitment to sustainable development. The most commonly used definition of sustainable development is that drawn up by the World Trade Commission on Environment and Development in 1987 which states that sustainable development is:

‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs’

This definition is consistent with the themes of the NPPF, which draws upon The UK Sustainable Development Strategy Securing the Future’s five ‘guiding principles’ of sustainable development: living within the planet’s environmental limits; ensuring a strong, healthy and just society; achieving a sustainable economy; promoting good governance; and using sound science responsibly.

SEA originates from the European Directive 2001/42/EC “on the assessment of the effects of certain plans and programmes on the environment” (the ‘SEA Directive’) which came into force in 2001. It seeks to increase the level of protection for the environment; integrate environmental considerations into the preparation and adoption of plans and programmes; and promote sustainable development. The Directive was transposed into English legislation in 2004 by the Environmental Assessment of Plans and Programmes Regulations (the ‘SEA Regulation’) which requires SEA to be carried out for plans or programmes,

‘subject to preparation and, or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and required by legislative, regulatory or administrative provisions’.

This includes Local Plans. The aim of the SEA is to identify potentially significant environmental effects created as a result of the implementation of the plan or programme 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’ as specified in Annex 1(f) of the Directive.’

SA examines the effects of proposed plans and programmes in a wider context, taking into account economic, social and environmental considerations in order to promote sustainable development. It is mandatory for Local Plans to undergo a Sustainability Appraisal in accordance with the Planning and Compulsory Purchase Act 2004 as amended by the Planning Act 2008, and in accordance with paragraph 165 of the NPPF.

Whilst the requirements to produce a SA and SEA are distinct, Government guidance considers

that it is possible to satisfy the two requirements through a single approach providing that the requirements of the SEA Directive are met. This integrated appraisal process will hereafter be referred to as SA.

2.1.2 The Requirement Concerning the Minerals and Waste Local Plan Review

The adopted LMWLP was subject to SA as required by the above legislation. Carrying out SA work throughout the plan preparation was part of an integrated approach and has ensured that the sustainability considerations identified were addressed through subsequent iterations of the Minerals and Waste Local Plan from preliminary work to adoption in 2016. This is further required of the Plan review at this stage, since the Plan review process to date (in February 2021), has concluded that there is scope to further review and amend its policies.

The Plan review process, which will culminate in a revised Local Plan including amended policy approaches, will need SA work to inform and justify revisions alongside reasonable alternative approaches if required. In short, the progression of the LMWLP was influenced by an assessment of its sustainability implications and effects, and any changes to that document will also need such an assessment.

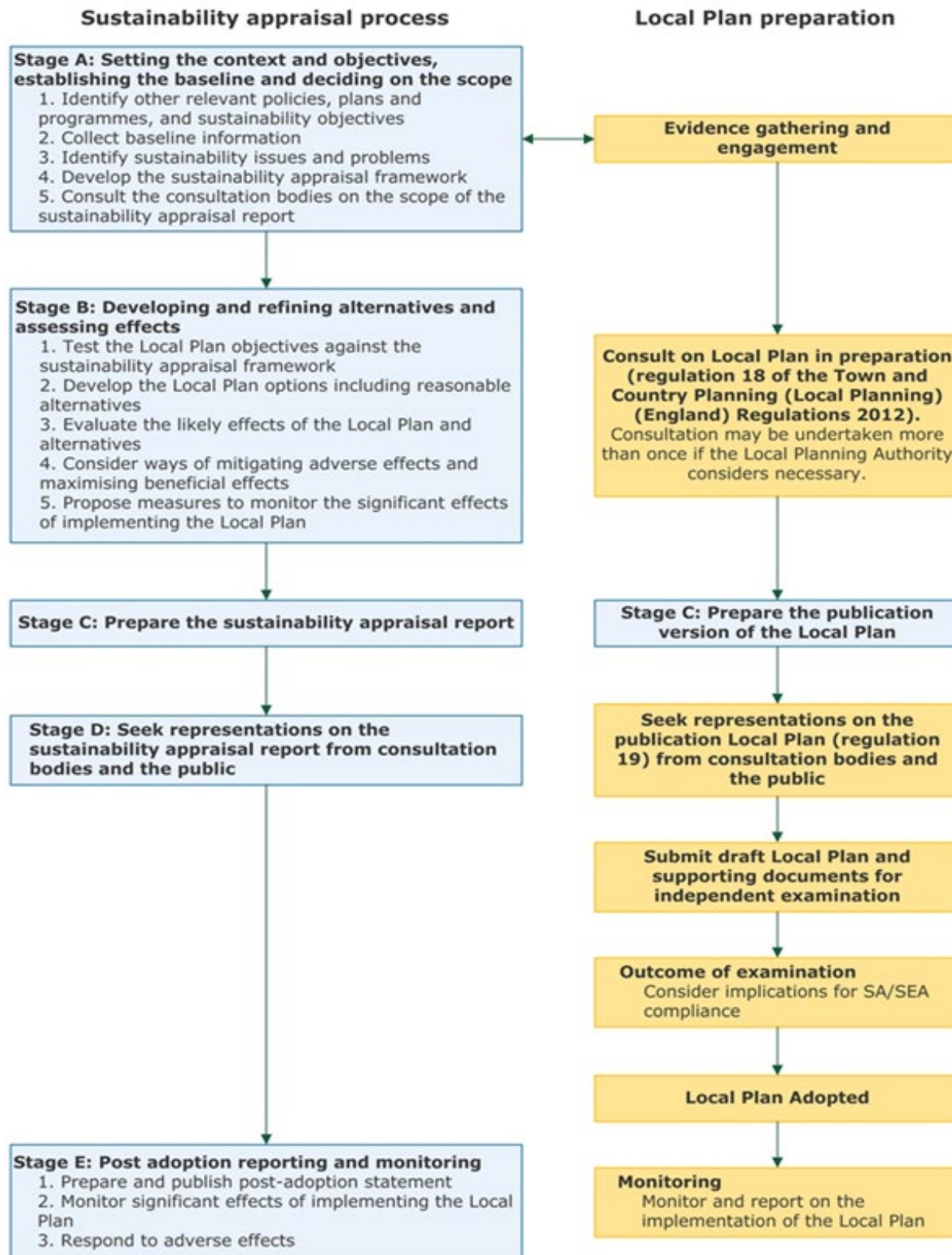
2.2 The Sustainability Appraisal Process

The methodology adopted for the SA of the Plan review at this stage follows that of the Sustainability Appraisal process. This follows five sequential stages that should be undertaken alongside relevant stages in the plan-making process (i.e. those undertaken by the Council in formulating the LMWLP). These stages are:

- Stage A – This stage sets out the context and objectives of the SA, establishes baseline, and decides on the scope of the appraisal, including the formulation of frameworks against which the LMWLP can be appraised. The principal output at this stage is a ‘SA Scoping Report’. This stage should be undertaken at the ‘evidence gathering and engagement’ stage of the plan-making process.
- Stage B – This stage represents the first draft appraisal of the Plan, in this case the LMWLP. It assesses the effects of the LMWP as drafted and made available for consultation. The appraisal includes alternative approaches to the Plan’s content, which have been set out and their identification justified. The output at this stage is an ‘Interim SA Report’ which is made available alongside the Regulation 18 Local Plan.
- Stage C – This stage represents the publication of the final SA Environmental Report, which will be made available for consultation alongside the Regulation 19 version of the LMWLP.
- Stage D – This stage involves extensive consultation with the public, as mentioned above in Stage C, as well as other statutory bodies. Stage D also includes the submission of the SA Environmental Report alongside the submission version of the LMWLP for independent examination, the examination itself, and subsequent adoption of the LMWLP.
- Stage E – This stage corresponds to the post-Adoption Statement, which sets out how the SA process and ensured sustainability themes have been factored into the LMWLP, and also the indicators for monitoring the effects of the LMWLP once adopted.

The following figure represents a visual representation of these stages.

Figure 1: Stages in the Sustainability Appraisal Process and Local Plan Preparation



Source: Planning Practice Guidance – Sustainability appraisal requirements for local plans (Paragraph: 013 Reference ID: 11-013-20140306 Revision date: 06 03 2014)

2.3 The Aim and Structure of this Report

The aim of this Report is to respond to Stage A of the SA process shown in the previous figure, to:

- Identify other relevant policies, plans and programmes, and sustainability objectives
- Collect baseline information
- Identify sustainability issues and problems
- Develop the Sustainability Framework
- Consult the consultation bodies on the scope of the Sustainability Appraisal report

2.3.1 Building on Previous SA Work

A SA Scoping Report was produced for the adopted LMWLP, which included information regarding context, baseline, issues and problems and a Sustainability Framework. These elements were also all refined through that process, culminating in the SA that was submitted for examination prior to adoption in 2016.

It is likely that, since 2016, much of the context, baseline, and issues and problems would have changed; in part due to the emergence of the revised National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG), but also through the use of the adopted LMWLP policies to determine planning applications in Lincolnshire. The success of these policies has been subject to monitoring.

This Scoping Report updates the context and baseline relevant to current times, and also explores whether there would be any resulting need to change the Sustainability Framework.

3. Sustainability and Environmental Context, Baseline and Objectives

3.1 Introduction

The SA of the Plan review is required to set the scope for the assessment of options and Plan content relevant to that Plan area. Stage A of the SA process sets out how the context and the objectives of the SEA should be set, whilst establishing the baseline relevant to the Plan area. This involves:

- Identifying other relevant policies, plans and programmes, and sustainability objectives;
- Collecting baseline information;
- Identifying sustainability issues and problems; and
- Developing the SA frameworks (formulating relevant criteria against which the Plan's policy content and site allocations will be assessed).

The following section outlines the relevant plans and programmes and the baseline information profile for the Plan review area and where relevant beyond.

3.2 Policies, Plans and Programmes (Stage A1)

Any amendment to the LMWLP must have regard to existing policies, plans and programmes at national and regional levels and strengthen and support other plans and strategies. It is therefore important to identify and review those policies, plans and programmes which are likely to influence the Plan review at an early stage. The content of these plans and programmes can also assist in the identification of any conflicting content of plans and programmes in accumulation with the Plan review. Local supporting documents have also been included within this list as they will significantly shape policies and decisions in the area.

It is recognised that no list of plans or programmes can be definitive and as a result this report describes only the key documents which influence the Plan review. The table below outlines the key documents, whilst a comprehensive description of these documents together with their relevance to the Plan review is provided within Appendix 2.

Table 1: Other relevant policies, plans and programmes

Relevant Plans and Programmes
International plans and programmes
European Landscape Convention (Florence, 2002)
European Union Water Framework Directive 2000 (Directive 2000/60/EC)
European Union Nitrates Directive 1991 (91/676/EEC)

Relevant Plans and Programmes
European Union Environmental Noise Directive 2002 (2002/49/EC)
European Union Floods Directive 2007 (2007/60/EC)
European Union Air Quality Directive 2008 (2008/50/EC) and previous directives (96/62/EC; 99/30/EC; 2000/69/EC and 2002/3/EC)
European Union Directive on the Conservation of Wild Birds 2009 (2009/147/EC)
European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992 (92/43/EEC)
European Union Biodiversity Strategy for 2030
United Nations Kyoto Protocol
World Commission on Environment and Development 'Our Common Future' 1987
The World Summit on Sustainable Development Johannesburg Summit 2002
Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations).
The Conservation of Habitats and Species Regulations, 2019
The Industrial Emissions Directive 2010 (2010/75/EU)
European Convention on the Protection of the Archaeological Heritage (Valletta, 1992)
European Union Mining Waste Directive (2006/21/EC)
European Union Groundwater Directive (2006/118/EC)
European Union Waste Framework Directive (2008/98/EC)
European Union Landfill Directive (99/31/EC)
European Union Soil Strategy for 2030, 2021
Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, UNESCO, 1971
National Plans and Programmes
The Conservation of Habitats and Species Regulations, 2019
Safeguarding our Soils: A Strategy for England (Defra, 2009)

Relevant Plans and Programmes
National Planning Policy for Waste (NPPW, 2014)
National and Regional Guidelines for Aggregates Provision in England 2005 - 2020
The Countryside and Rights of Way (CROW) Act, 2000
Future Water: The Government's water strategy for England (2008)
Flood and Water Management Act, 2010
The Environment Agency's approach to groundwater protection (2018)
Planning (Listed Buildings and Conservation Areas) Act, 1990
Ancient Monuments and Archaeological Areas Act 1979
The Government's Statement on the Historic Environment for England (2010)
National Heritage Protection Plan Framework (2012)
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007
(National) Planning Practice Guidance (updated 2021)
National Planning Policy Framework (July 2021)
Natural Environment and Rural Communities Act (2006)
Wildlife and Countryside Act (1981)
Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011)
UK Geodiversity Action Plan: A framework for enhancing the importance and role of geodiversity
National Flood and Coastal Erosion Risk Management Strategy for England (2020)
Air Pollution: Action in a Changing Climate (2010)
Climate Change Act (2050 Target amendment) (2008) Order 2019
The Waste (Circular Economy)(Amendments) Regulations (2020)
Waste Management Plan for England (2021)
The Hazardous Waste (England and Wales) Regulations (2005)
The Waste Incineration (England and Wales) Regulations (2002)

Relevant Plans and Programmes
Household Waste Recycling Act (2003)
Environment Act, 2021
Flood Risk Regulations, 2009
A Green Future: Our 25 Year Plan to Improve the Environment, Defra, 2018
Net Zero Strategy: Build Back Greener, 2021
Clean Air Strategy, 2019
Land Use: Reducing emissions and preparing for climate change, Climate Change Committee, 2018
National Quality Mark Scheme for Land Contamination Management, 2017
Our Waste, Our Resources: A Strategy for England, 2018
UK Climate Change Risk Assessment, Committee on Climate Change, 2022
Water Abstraction Plan, Defra, 2011
Meeting our Future Water Needs: A National Framework for Water Resources, 2020
National Flood and Coastal Erosion Risk Management Strategy, 2020
County and Regional Plans and Programmes
Lincolnshire Minerals and Waste Local Plan (2016)
Lincolnshire Local Aggregate Assessment (2020)
Lincolnshire Waste Needs Assessment (2021)
The Review of the Lincolnshire Minerals and Waste Local Plan (LMWLP) (2021)
Lincolnshire Minerals and Waste Development Scheme (2021)
Lincolnshire Biodiversity Action Plan (2011 – 2020)
Lincolnshire Flood Risk and Water Management Strategy 2019-2050
Greater Lincolnshire Geodiversity Strategy (2017-2021)
The Lincolnshire County Council Corporate Plan
The Lincolnshire County Council Green Master Plan

Relevant Plans and Programmes
The Lincolnshire Local Transport Plan
The Waste Strategy for Lincolnshire
Draft Drought Plan 2022, Anglia Water, March 2021
The Emerging Water Resources Regional Plan for Eastern England, Water Resources East – Safeguarding a sustainable supply of water
Anglian River Basin District Draft Flood Risk Management Plan 2021-27
Humber River Basin District Draft Flood Risk Management Plan 2021-27
District level Plans and Programmes
Central Lincolnshire Local Plan Review (Emerging)
South Kesteven District Council Local Plan (2011 – 2036) (adopted 2020)
Southeast Lincolnshire Local Plan (2011 – 2036) (adopted 2019)
East Lindsey Local Plan Core Strategy (2016-2031) (adopted 2018)

3.3 Collecting Baseline Information (Stage A2)

This sub-section details the Baseline Information profile for the Plan Review area and those neighbouring areas that are considered relevant to the content of the Plan review. The following section outlines a summary of the key baseline information and therefore the current state of the environment for the Plan review area. The SA Directive requires the production of the following information:

‘The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;” Annex 1(b);

The environmental characteristics of areas likely to be significantly affected;” Annex 1(c); and

Any existing 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 and 92/43/ECC” Annex 1(d).’

The baseline information identifies current sustainability issues and problems in the Plan review area which should be addressed and provides a basis for predicting and monitoring the effects of implementing the document. To ensure the data collected was relevant and captured the full range of sustainability issues, it was categorised under 13 thematic topics. They cover all the topics referred to in Annex 1(f) of the SEA Directive and follow the order of:

- Minerals
- Waste
- Economy and employment
- Housing
- Health and wellbeing
- Transport and connectivity
- Cultural heritage
- Biodiversity and nature conservation
- Landscapes
- Water
- Climate and energy
- Air
- Soils

Appendix 1 of this Report outlines the full baseline information profile for the Plan review area, and where relevant further afield. The key sustainability issues for the Plan review area are outlined in the following sub-section.

3.4 Sustainability Issues (Stage A3) and the formulation of SA Objectives (Stage A4)

The outcome of the above processes related to the identification of relevant plans and programmes and the baseline information profile of the Plan review area is the identification of key sustainability and environmental issues. These represent those sustainability and environmental problems facing the Plan review area which assist in the finalisation of a set of relevant SA Objectives that can be subsequently expanded upon in a SA Framework.

The assessment of the Plan review will be able to evaluate, in a clear and consistent manner, the nature and degree of impact and whether significant effects are likely to emerge from the Plan review's content. The following table outlines the thought process which has led to the formulation of the SA Objectives for the Plan review.

Table 2: Key Sustainability Issues

General Theme	Focused Themes	Description and Supporting Evidence
Biodiversity	Ecological designations and the effects of minerals activities Restoration for biodiversity net	Lincolnshire contains a range of sites with ecological designations, including Habitats Sites (Ramsar sites, Special Protection Areas (SPAs), and Special Areas of Conservation(SACs)), Sites of Special Scientific Interest (SSSIs) and National and Local Nature Reserves (NNRs and LNRs). In addition, a number of Biodiversity Action Plans

	gains	and Habitat Action Plans are in place, with the aim of conserving and increasing nationally and locally important habitats and species in the county. Aside from the need to protect these designations in the first instance through locational criteria for new minerals and waste sites, both mineral extraction sites and landfill sites can ensure cumulatively significant gains in biodiversity through their restoration. Although minimum policy requirements exist in regard to biodiversity net gain, there are opportunities for larger gains through restoration schemes that primarily focus on gains.
Water quality	Risk of contamination	There are potential issues with disrupting groundwater flows from minerals activities. Risk of contamination of surface and groundwater and siltation of watercourses: - pollution from the working of previously contaminated land, including the reworking of mineral waste tips for secondary aggregates and post-restoration uses, e.g. use of fertilisers, surface water run-off - by suspended sediment from mineral working and tipping of mineral waste - pollution from natural contaminants and fuels, oils and solvents.
Water resources	Water stress	Lincolnshire lies within an area of high water stress, and policies should seek to minimise demand on water resources where possible.
The Best and Most Versatile Agricultural Land (BMVAL)	A need for preservation Restoration to agricultural use	The Agri-Food Sector is a major industry in Lincolnshire . A large amount of Grade 1 Agricultural Land (the best and most versatile in the County and nationally) is located in the south east of the County. In Lincolnshire most of the land is Grade 1, Grade 2 or Grade 3. Grade 3 is further subdivided into Sub Grades 3A and 3B, with the former being classed as BMVAL. As a result a very high proportion of land in Lincolnshire is likely to be BMVAL and this should be protected through locational criteria or as part of restoration schemes. Restoration to after-uses that safeguard BMVAL should be ensured, and where relevant proposals should

		demonstrate that they would be restored back to agricultural land of a comparable quality. This can ensure that mineral and waste activities are not detrimental to the local Agri-Food economy.
Soil	Sustainable use and protection	All soil stripped from land (regardless of agricultural grade) should be used sustainably and where possible conserved through after-use. This does not necessarily mean it has to be used on the restoration of the same piece of land or for agricultural purposes, as biodiversity gains can be enabled through lower quality soils (for instance the growth of wildflowers). The protection of soils should be sought through restoration schemes to biodiversity where soils are cared for in a sustainable manner, enabling habitat creation in addition to soil preservation for future agricultural needs. Mineral operations also need to have regard to: - Degradation of soil stored during period of mineral working - Risk of land contamination - Fragmentation of agricultural holdings - Land take and permanent loss of soils - Land instability during mining operations and reclamation. There is similarly a risk of subsidence or instability from sub-surface working, tipped land or hydrological changes as a result of minerals activities.
Landscape	Restoration for landscape benefits	Many mineral deposits in Lincolnshire lie close to or in sensitive landscapes. An Area of Outstanding Natural Beauty (AONB) is also located within the County. The Lincolnshire landscape and its relationship with historic settlements form an important component of the historic environment contributing to place making and local distinctiveness. The backfilling of quarries as landfill sites through restoration can extend the time for restoration. Landscape restoration and management opportunities should be maximised in relation to minerals and landfill operations and after-use.

General Theme	Focused Themes	Description and Supporting Evidence
Historic environment	Minimising and avoiding effects on assets	The County includes large numbers of recorded archaeological sites, listed buildings and conservation areas, as well as scheduled monuments. Many of these assets lie in close proximity to mineral deposits. The NPPF requires a positive strategy for the conservation of the historic environment.
Flooding	Drainage and disturbance Restoration for flood storage or alleviation benefits	Throughout the County there is a need for flood and surface water management which has implications regarding the location, longevity and viability of minerals operations. Proposed minerals developments must ensure they do not impede drainage in any way, and that mineral processing plants are not at risk of flood damage. Similarly, any proposed minerals and waste developments should not impact any flood infrastructure or unreasonably affect water discharge rates / flows. In general, the following risks relate to: - Disturbance or removal of surface features such as watercourses or flood storage - Increased risk of groundwater flooding from low level restoration - Some minerals development increasing flows in the receiving water courses (where water is discharged) - Effects of long-term pumping on other abstractors and wetland habitats Nevertheless, restoration opportunities exist to increase flood storage post-extraction. This supports an increased emphasis in the NPPF on the effects of climate change. The restoration of mineral workings and landfill sites provide significant opportunities for mitigation and adaptation in this regard, and the LMWLP should continue to promote measures such as habitat creation and increased flood storage capacity.
Transport	Congestion and road usability	Parts of the strategic road network pass through towns and villages creating potential issues for local communities in terms of air quality, amenity and road usability which can be heavily impacted by increases in Heavy Goods Vehicle (HGV) trips - particularly in sensitive rural areas and designated Air Quality Management

		Areas (AQMA's). Minerals and waste development may lead to changes in local travel patterns that may intensify existing issues such as congestion or road safety.
Minerals development	Safeguarding resource	There is a strong need to safeguard mineral resources, including through increased use of secondary and recycled materials. There is similarly a need to ensure that mineral resources are both adequately supplied and also viable from an economic viewpoint. This is also the case for wider minerals and waste industries.
Minerals development	Meeting demand and growth needs	At the Local Planning Authority level, growth requirements are at an unprecedented level, and house building is needed to meet a housing shortage. Without a plan-led system, a steady and adequate supply of building materials might not be forthcoming to facilitate forecasted development needs. Further to housebuilding, infrastructure projects both independent and ancillary to housing growth, such as roads, requires mineral resource. This is a key driver of change in identifying and ensuring a steady and adequate supply of sand and gravel, as well as other aggregates.
Minerals and waste development	Safeguarding infrastructure	There is an identified need to ensure both that there is a steady and adequate supply of minerals, and the treatment of waste through various waste management facility types. This is the remit of the Plan, and pertinent to consider at the LMWLP review stage, in order to both cover a period going beyond the adopted LMWLP plan period date, and the possibility that neighbouring authorities may fail to make adequate provision for a steady and adequate supply of sand and gravel from their own indigenous deposits. As the Plan Review document sets out, this may have implications for the level of provision that the LMWLP will need to make. To that extent, the need to safeguard existing infrastructure is justified and mechanisms exist for safeguarding against development that would unnecessarily sterilise minerals sites and infrastructure or prejudice or jeopardise their use by creating incompatible land uses nearby. Similarly is there a need to safeguard

		existing and allocated waste management facilities from redevelopment to a non-waste use and, or the encroachment of incompatible development. These are included within existing LMWLP policies, yet often rely on the district planning authorities formally consulting the County Council on relevant applications.
Waste development	Meeting demand and growth needs	Similarly to a need to provide minerals to respond to and enable growth, there is a need to ensure that the waste derived from an increase in population is suitably and sustainably managed. This will require a range of facility types and scales across the waste hierarchy, including disposal.
Waste development	Bird strike	The Royal Air Force (RAF) operate a number of important bases in the County including Waddington and Coningsby. These are a significant factor when considering restoration schemes, particularly if water bodies are involved, as the creation of wetland habitats and the subsequent presence of birds can pose a significant hazard to airplanes in flight. The Plan and this SA needs to have regard to the need to protect flight paths for both civilian airports (outside the County) and military airbases (both within and outside the County). Inappropriate development has the potential to negatively affect the viability of airbases, the closure of which could have a significant impact on the local economy. Safeguarding and consultation mechanisms can ensure the prevention of bird strike hazards, relevant to wider themes of health and safety.
Climate Change	Adapting to climate change Reducing carbon emissions	Climate change and its correlation with sustainable waste management and mineral development is well established, in adhering to the waste and minerals hierarchies, which seek to reduce waste going to landfill. In line with the Government's new Net Zero Strategy (October, 2021) there is a need to reduce emissions from the treatment and disposal of waste and landfill, including emissions from incineration not used to generate energy (e.g. incineration of chemical waste). Although an operational matter in many respects, there is scope for the Local Plan to reinforce policies that seek to ensure promote carbon neutrality from new development.

General Theme	Focused Themes	Description and Supporting Evidence
Health	Human health and pollution Restoration to a recreation after-use	Potential impacts on health, well-being and quality of life should be taken into account in identifying suitable sites for minerals sites and waste facilities. The potential impact of noise, dust, vibration, lighting and water pollution generated by ongoing operations needs to be considered. There lies an opportunity to restore mineral extraction sites to a recreation or sport after use. In response to a growing population, it is possible that such after-uses can offer wider social health and wellbeing benefits to local areas in the long term, and these opportunities can be explored holistically at the Plan level or otherwise on a case-by-case basis at the development management stage.

The following table explores whether the identified SA Objectives above fall into the three broad categories of sustainability, namely social, environmental and economic themes.

Table 3: The Sustainability Appraisal (SA) Objectives

SA Objective	Social	Environmental	Economic
1) To conserve and where possible enhance biodiversity and geodiversity designations, as well as natural habitats and protected species	No	Yes	No
2) To conserve and where possible enhance the quality and character of landscapes and landscape features	Yes	Yes	No
3) To conserve and where possible enhance the historic environment (both above and below ground), built and cultural heritage, and their settings	Yes	Yes	No
4) To maintain and where possible improve the quality and sustainable use of ground and surface water resources	Yes	Yes	Yes
5) To maintain and where possible improve air quality	Yes	Yes	No

SA Objective	Social	Environmental	Economic
6) To ensure that, where possible, new development is carbon neutral	Yes	Yes	Yes
7) To ensure that minerals and waste activities do not lead to an increase in flood risk and are prepared for the impacts of climate change	Yes	Yes	Yes
8) To minimise any impacts deriving from waste management and, or mineral extraction in regard to human health and wellbeing	Yes	No	No
9) To minimise any impacts on local amenity resulting from minerals or waste activities (noise, dust, vermin, odour)	Yes	No	No
10) To minimise minerals and waste miles, ensure there is suitable transport infrastructure, and promote the sustainable transportation of minerals and waste	No	Yes	Yes
11) To ensure a steady and adequate supply of minerals to meet identified needs and avoid the sterilisation of minerals resources.	Yes	No	Yes
12) To promote the sustainable use of minerals.	No	Yes	Yes
13) To ensure the effective restoration and appropriate after-use of mineral extraction sites	Yes	Yes	No
14) To move the management of waste up the waste hierarchy (prevention, re-use, recycling, other recovery, disposal)	No	Yes	Yes
15) To ensure a mix of types and scales of waste management facilities, and ensure adequate provision is made for waste disposal	No	No	Yes

SA Objective	Social	Environmental	Economic
16) To protect and improve soil quality, in particular the County's best and most versatile agricultural land	No	No	Yes
17) To promote economic growth and diversity across the County through opportunities arising from minerals and waste activities	Yes	No	Yes

3.4.1 The Compatibility of the SA Objectives

A total of 17 SA Objectives have been derived for the appraisal of the Plan review. They are based on the scope of the document, the themes required of SA, policy advice and guidance, and to the assessment of the current state of the environment.

It is useful to test the compatibility of SA Objectives against one another in order to highlight any areas where potential conflict or tensions may arise. It is to be expected that some objectives are not compatible with other objectives; objectives which are based around environmental issues sometimes conflict with economic and social objectives, and vice versa.

It is considered that the majority of the SA Objectives relevant to the content of the Plan review are broadly compatible or otherwise unrelated. There are however a number of potential incompatibilities identified, and these are discussed below:

- Protecting and enhancing biodiversity and minerals extraction **and** activities: The possibility of effects arising from any change in land use on biodiversity creates an incompatibility between Plan aims and the need to protect wildlife and habitats, either on-site or where pathways exist. This can be considered temporary in many cases however, relevant to the timescale of operations, and acknowledging that positive long term effects on biodiversity can be realised through restoration.
- Maintaining and enhancing water quality and minerals extraction **and** activities: There is a possibility that minerals extraction **and** activities can lead to adverse impacts on groundwater conditions. Those SA Objectives that seek the protection of water quality for environmental purposes and ensuring minerals extraction for economic needs may therefore be incompatible in some areas of the county.
- The protection of the best and most versatile agricultural land and minerals extraction and activities: There is a possibility that minerals extraction and activities can lead to adverse impacts on the capacity of soils for future use. Those SA Objectives that seek the protection of soils and minerals extraction for differing economic purposes respectively may therefore be incompatible in some areas of the county.
- Maximising jobs from minerals extraction and activities and amenity and environmental effects: There is a potential incompatibility through a desire to maximise the potential for employment opportunities in the minerals industry, through for instance a higher number of extraction sites, and the potential negative amenity and environmental effects that could arise from a higher number of extraction sites.

- Restoration and some types of waste disposal: There is a potential conflict between proposals that backfill mineral voids and the need to move waste management up the waste hierarchy. Landfilling, as disposal, is considered the least sustainable form of waste management, however in some instances may be promoted by operators as part of restoration proposals.

3.5 The Approach to Assessing the Plan Review

3.5.1 Assessment relevant to the content of the Plan review

As previously set out, the Plan review may include policy modifications, but it is suggested through the interpretation of current evidence (the Local Aggregate Assessment 2021) that additional site allocations are likely to be required to ensure mineral needs can be met through the Plan review period.

The SA, in line with the scope of the Plan review, is required to assess the impacts of the Plan review's content and any reasonable alternatives. For this purpose, and as required of SA, a broad SA Framework has been devised for the Plan's policy content. The SA Framework takes the SA Objectives identified previously in this report as a starting point and elaborates on each objective in turn with a series of criteria or 'key questions' to aid the assessment of the Plan review's content in more detail.

3.5.2 The SA Framework for Assessing Policy Content

The following SA Framework forms the basis of the methods used to evaluate the effects of the Plan review's policy amendments and any 'reasonable alternative' options where relevant. Quantitative analysis is used where available; however, a number of assumptions are required in order to make qualitative and comparable judgements to assess options to the same level of detail. It is important that a level playing field is ensured for the assessment of options, with the same level of information being used in the assessment. Assumptions will be set out in the relevant sections of the SA Environmental Report (the next stage in the process) in which specific elements of the Plan review are assessed.

Table 4: SA Framework for Assessing the Plan Review (Policies)

Proposed 2022 SA Objective	Key Questions and Assessment Criteria (Does the policy...)	Potential Indicators
1) To conserve and where possible enhance biodiversity and geodiversity designations, as well as natural habitats and protected species	Ensure a determination of 'no likely significant' (alone or in-combination) on Habitats Sites? (As identified within the Habitats Regulations Assessment (HRA) of the Local Plan as it emerges) Seek appropriate mitigation or offsetting where necessary?	Change in number and area of designated ecological sites. Development proposals affecting protected species outside protected areas.

	Have an identified effect on any designation of national, regional or local importance? Avoid damage to sites, protected species and habitats? Maintain and improve biodiversity and geodiversity, avoiding irreversible losses? Restore full range of characteristic habitats and species to viable levels? Lead to biodiversity net gains? Conserve or enhance species diversity and avoid harm to internationally and nationally protected, scarce and rare species? Provide for positive management of existing habitats? Assist species to adapt to the anticipated effects of climate change? (i.e. through connecting habitats and, or providing greenspace)? Expand the spatial extent of priority habitat within Lincolnshire? Conserve or enhance geological SSSIs? Create, extend or enhance Local Geological Sites? Ensure current ecological networks are not compromised and future improvements in habitat connectivity are not prejudiced?	Achievement of Habitat Action Plan targets. Achievement of Species Action Plan targets. Development proposals affecting habitats outside protected areas. Bird survey results. Reported condition of ecological SSSIs. Number of planning permissions that generated any adverse impacts on sites of acknowledged biodiversity importance. Percentage of major developments generating overall biodiversity enhancement. Hectares of biodiversity habitat delivered through site allocations or through policy approaches.
2) To conserve and where possible enhance the quality and character of landscapes and landscape features	Protect and enhance the landscape everywhere and particularly in designated areas? Improve landscape and townscape character of the county and help to minimise adverse impacts to local amenity and overall landscape character?	Changes in landscape of designated landscape (landscape conditions attached to new permissions) Number of Tree Preservation Orders (TPOs) affected

	Conserve and enhance landscape character, quality and distinctiveness, paying particular regard to the AONB and other designated areas of high landscape and, or historic sensitivity or value? Contribute to an adverse cumulative impact of development on protected landscapes? Provide for the restoration of land to an appropriate after-use and landscape character? Reduce the amount of derelict, degraded and underused land? Provide opportunities for the creation of accessible greenspace where restoration is planned?	Number or extent of field boundaries affected Light pollution Amount of new development in AONB (and other designations) Percentage of population having access to a natural greenspace within 400 metres of their home. Length of greenways constructed Hectares of accessible open space per 1,000 population
3) To conserve and where possible enhance the historic environment (both above and below ground), built and cultural heritage, and their settings	Have an adverse effect on any designated or non-designated or potential heritage assets or their settings? Seek to ensure no loss, or erosion, of the historic character of the landscape? Have an adverse effect on known archaeological deposits? Change the condition of known or potential archaeological monuments and, or the ability to record unknown buried archaeology? Protect designated areas- nationally, regionally and locally? Protect areas of high archaeological potential? Suggest measures to conserve and enhance the local character and distinctiveness of historic townscapes and landscapes? Identify and protect the relationship between historic settlements and the wider landscape?	Number of listed buildings at risk Area of historic parks and gardens Size, condition and number of Conservation Areas Areas of significant archaeological and paleo-environmental potential Number of conservation area appraisals completed, and enhancement schemes implemented Buried archaeology as listed in the NMR or HER or considered to be likely within a

		particular site by the County Archaeologist and, or Historic England. Minerals and Waste applications submitted and refused due to adverse impact to the Historic Environment Minerals and Waste applications submitted and allowed with conditions relating to the Historic Environment Site allocations supported or opposed by Historic England
4) To maintain and where possible improve the quality and sustainable use of ground and surface water resources	Seek to sustain the highest water quality? Take into account the Water Framework Directive and proposed development impacts? Seek to prevent pollution from field run off or other sources? Likely to change the general quality assessment grades of surface and ground water quality? Avoid adverse effects on existing patterns of groundwater flow and, or surface water flow? Protect or enhance the quantity and quality of ground and surface waters? Does the Plan seek to address the potential issues with the removal of part of an aquifer and disrupting groundwater flows? Change potable and, or non-potable abstraction resources or disrupt aquifer continuity? Maintain water availability for water dependant habitats?	Water quality in rivers Groundwater quality Potential effect on groundwater source protection zones Condition of water bodies (Water Framework Directive) Water use figures from water supplier(s) Resource availability status for units of groundwater in Catchment abstraction Use of recycled water on waste sites.

	Affect rates of abstraction and water use? Affect grey water recycling? Seek the introduction of natural systems which can improve surface water runoff into water courses? Seek to ensure proposals enhance biodiversity in water courses?	
5) To maintain and where possible improve air quality	Take into account proposed development impacts within any AQMAs and their relevant Action Plans Account for locations where air pollution levels are approaching the National Objectives thresholds Improve air quality? Affect levels of the 7 National Objective pollutants for local air quality (SO₂, NO₂, PM₁₀, benzene, 1,3-butadiene, CO, Pb).	Achievement of emission limit values Number of AQMAs and dwelling affected Number of days of air pollution Operational impact on air quality
6) To ensure that, where possible, new development is carbon neutral	Ensure carbon neutrality? Encourage on-site energy improvements? Help to reduce greenhouse gas emissions and enhance energy efficiency? Affect methane levels? Seek to generate or recover energy from waste?	Consumption of electricity - Domestic use per consumer and total commercial and industrial use. Consumption of energy. Use of low carbon technologies. Location to maximize tonnes per miles. Opportunities for utilizing renewable or low-carbon energy supply systems Number of applications granted and refused Environment Agency (EA) permit(s)

Proposed 2022 SA Objective	Key Questions and Assessment Criteria (Does the policy...)	Potential Indicators
7) To ensure that minerals and waste activities do not lead to an increase in flood risk and are prepared for the impacts of climate change	Ensure that minerals and waste developments are not at risk of flooding? Ensure no increased risk of flooding elsewhere? Mitigate the potential effects of fluvial flooding and reduce overall flood risk? Mitigate the potential of surface water flooding and reduce overall flood risk? Mitigate the potential for coastal flooding and reduce overall risk? Mitigate the potential for groundwater flooding and reduce overall risk? Minimise the risks and impacts of flooding having taken into account climate change? Ensure that development requiring water to be discharged does not lead to flood risk regarding the receiving water courses? Seek to eliminate biodegradable waste going to landfill? Seek to ensure that restoration can sequester carbon from the atmosphere? Seek to reduce carbon emissions from transport / freight movements? Seek to reduce emission from the treatment and disposal of waste and landfill, including emissions from incineration not used to generate energy (e.g. incineration of chemical waste)?	Flood Risk – Planning applications approved against Environment Agency advice. Properties at risk of flooding from rivers. Incidence of fluvial flooding (properties affected). Incidences of surface water flooding Incidences of coastal flooding Incidences of groundwater flooding Strategic Flood Risk Assessment (SFRA) results.
8) To minimise any impacts deriving from waste management and, or mineral extraction in regard to human health and wellbeing	Avoid or minimise adverse impacts on human health and safety to acceptable levels? Seek to site waste facilities away from residential properties (distances by facility type as appropriate)? Seek appropriate buffers or distances between mineral extraction sites and residential areas?	Human health and safety – complaints to environmental health regarding minerals or waste management activities Play and open space quality, quantity and accessibility

	Promote the use of landscaping and attenuation bunds to reduce the impact of noise-creating activities? Minimise traffic volumes? Reduce the impact of road traffic, in particular HGV trips, on local communities? Ensure the provision of any related mitigation measures? Maximise the benefits of appropriate restoration and after-use of sites for the community? Ensure that any public rights of way or bridleways are either protected, or diversion is justified? Ensure suitable mechanisms to ensure operations do not conflict with a military or civil airfield safeguarding area (regarding bird strike hazards)?	Percentage of residents who are happy with their neighbourhood as a place to live Diversion of public rights of way Diversion of bridleways
9) To minimise any impacts on local amenity resulting from minerals or waste activities (e.g. noise, dust, vermin, odour)	Ensure that a Statutory nuisance is not caused under the Environmental protection Act 1990, in terms of dust? Ensure that a Statutory nuisance is not caused under the Environmental protection Act 1990 by reference to BS4142 "Method for Rating industrial noise affecting mixed residential and industrial sources"? Promote a decrease in noise levels in sensitive locations? Ensure odour level compliance? Ensure the provision of any related mitigation measures? Affect fly tipping in the County?	Noise levels Dust levels Number of human receptors Complaints relating to noise, dust and odour (Districts Environmental Health officers and SCC) Fly tipping statistics (SCC) Light pollution maps
10) To minimise minerals and waste	Reduce the vehicle kilometres travelled for the transportation of minerals and waste?	Location to maximize tonnes per miles

Proposed 2022 SA Objective	Key Questions and Assessment Criteria (Does the policy...)	Potential Indicators
miles, ensure there is suitable transport infrastructure, and promote the sustainable transportation of minerals and waste	Support and encourage the use of sustainable modes of transport? Support and encourage the use of low emission vehicles for the transportation of waste and minerals? Encourage a decrease in road dependency? Encourage easy access to A-Roads (as identified in the Lincolnshire Freight Strategy)?	Transport movements No of developments where a green travel plan is submitted or is a condition of development
11) To ensure a steady and adequate supply of minerals to meet identified needs and avoid the sterilisation of minerals resources.	Allow for a steady and adequate supply of minerals to meet the needs of the society in accordance with national policy? Seek to ensure mechanisms exist for the protection of mineral resources from non-minerals related development? Where practicable seek to secure the prior extraction of minerals where this would prevent sterilisation of the minerals due to non-minerals development?	Supply of minerals Number of planning permissions granted for non-minerals development within safeguarded areas Minerals resources within the county and extend of sterilisation
12) To promote the sustainable use of minerals.	Encourage the use of recycled goods and aggregates? Minimise the use of virgin materials and allow for the use of local, reused or recycled materials? Help to reduce land contamination? Protect best and most versatile agricultural land? Promote sustainable waste management principles?	Minerals resources consumption Protection of best and most versatile agricultural lands Soil contamination
13) To ensure the effective restoration and appropriate after-use of mineral extraction sites	Promote effective restoration and after use of sites for social, environmental or economic benefit?	Restoration and after use of minerals sites

Proposed 2022 SA Objective	Key Questions and Assessment Criteria (Does the policy...)	Potential Indicators
14) To move the management of waste up the waste hierarchy (prevention, re-use, recycling, other recovery, disposal)	Increase prevention, recycling and reuse measures? Increase other recovery (useful purposes for waste generated)? Reduce waste to landfill or for disposal? Encourage energy recovery?	Tonnage of household waste produced and recycled
15) To ensure a mix of types and scales of waste management facilities, and ensure adequate provision is made for waste disposal	Does it seek to provide for an adequate supply of facilities to meet waste forecasts? Does it address capacity gap needs? Does it seek to minimise the amount of waste transported out of the County for treatment or disposal?	Capacity gap analysis for all waste types
16) To protect and improve soil quality, in particular the County's best and most versatile agricultural land	Minimise risk of soil contamination? Safeguard soil and protect quality and quantity? Encourage the de-contamination and, or re-use of soils? Reduce the capacity of the soil to hold carbon? Minimise the loss of greenfield land to development? Minimise loss of the best and most versatile agricultural? Affect the amount of contaminated land? Lead to remediation of contaminated land?	Map or data showing soil quality Area (hectares) of contaminated land returned to beneficial use Number and percentage of new development completed on greenfield land. Number of waste management sites on greenfield land. Waste management sites or developments on best agricultural land.
17) To promote economic growth and diversity across the County through opportunities arising	Encourage rural diversification? Encourage inward investment? Support the development and growth of the local economy and generate employment	Number and percentage of businesses by industry type in key sectors. Number or percentage

Proposed 2022 SA Objective	Key Questions and Assessment Criteria (Does the policy...)	Potential Indicators
from minerals and waste activities	opportunities? Encourage innovation and competitiveness within the minerals and waste industries? Impact on long-term investment in waste management infrastructure? Ensure no conflict with other investment opportunities?	employed in minerals and waste sector Value of minerals and waste development industry within the county Investment in innovation technologies within waste and minerals industry Amount of waste treated within county Employment land availability Amount of waste exported

3.5.3 The SA Frameworks for Assessing Minerals and Waste Sites

In addition to the appraisal of the Plan review's policy content within the SA, any new site allocations or options (alternatives) are required to be assessed to identify any significant effects on the SA Objectives.

Two SA Frameworks have been devised for this SA, one for minerals sites and one for waste management sites. There is a need for distinction between the two, as mineral extraction sites and waste management facilities often have different locational criteria and differing factors that determine their sustainability. Additionally, distinctions need to be made for different types of waste management facility, as some are permanent and others temporary. Equally, some are enclosed, and others open air. SA Frameworks that can focus on these distinctions allow the comparison and analysis of facility types in a fair and consistent manner.

The following tables outline the SA frameworks proposed for the appraisal of minerals sites and waste sites in turn.

Table 5: SA Framework for the assessment of site allocation options – proposed minerals sites

SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
1) To conserve and where possible enhance biodiversity and geodiversity designations, as well as natural habitats and protected species	Restoration proposal would lead to outstanding benefits through restoration in regard to biodiversity net gains.	Proposals would lead to minimum policy standards (as established in the LWMLP) in regard to biodiversity value.	No statutory habitat sites within 250m but potential impacts on designations that would need further assessment.	No statutory habitat sites within 250m	Effects on nature conservation designations, but mitigation possible.	Likely significant effects on a Habitats Site (as identified in the Habitats Regulations Assessment including any Appropriate Assessment) or SSSI Or Sites that include or are adjacent to a Site of Special Scientific Interest (SSSI)
2) To conserve and where possible enhance the quality and character of landscapes and landscape features	Restoration proposal would lead to outstanding benefits through restoration regarding	Proposals would lead to minimum policy standards through restoration regarding	No specific landscape designation, however, has important landscape features and	Where relevant in specific circumstances	No specific landscape designation, however, has important landscape features and mitigation not	The site is located within or adjacent to the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB).

	landscape.	landscape.	mitigation possible		considered possible	
3) To conserve and where possible enhance the historic environment (both above and below ground), built and cultural heritage, and their settings ¹	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the conservation of assets in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the conservation of assets in the first instance.	There is considered to be the potential for an impact on the significance of a designated or non-designated historic environment asset, although mitigation is possible.	No impact on any designated or non-designated historic environment assets.	There is considered to be an impact on a designated or non-designated historic environment asset or its setting, but mitigation is possible. Potential impacts have been highlighted that might require preservation in situ.	There is considered to be an impact that could affect the significance of a designated or non-designated historic environment asset or its setting with no mitigation suitable. Or The site includes or is adjacent to a site or building with a nationally recognised designation (Scheduled Monuments, Conservation Areas, Listed Buildings, Registered Historic

¹ Site Appraisals to be undertaken by Place Services Historic Environment specialists

						Battlefields and Registered Parks and Gardens) or includes or is adjacent to Ancient Woodland
4) To maintain and where possible improve the quality and sustainable use of ground and surface water resources	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the conservation of water in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the conservation of water in the first instance.	The site is partly within a Source Protection Zone. Or The site is outside groundwater protection zones (SPZs) but sits above principle or secondary aquifers Or More detailed assessment required.	There are no known constraints regarding surface or groundwater.	The site is located within a ground water Source Protection Zone. Or There are known constraints regarding surface water.	The site is located within a ground water Source Protection Zone. And There are known constraints regarding surface water.
5) To maintain and where possible improve	It is not considered	It is not considered	Where relevant.	There are no Air Quality	The site is within close proximity to	The site is within an Air Quality

SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
air quality	possible for significant positive impacts to be ensured, as the criterion is focused on the maintenance of air quality in the first instance.	possible for positive impacts to be ensured, as the criterion is focused on the maintenance of air quality in the first instance.		Management Areas in the immediate area.	an Air Quality Management Area.	Management Area and will result in additional road transport movements
6) To ensure that, where possible, new development is carbon neutral	Not Applicable	Not Applicable	Not Applicable	All proposals - no impact identified at this stage as impacts would only be identifiable at the planning application stage and in adherence to relevant Plan policies.	Not Applicable	Not Applicable
7a) To ensure that minerals and waste activities do not lead to an increase in flood risk	Restoration proposal would lead to outstanding	Proposals would lead to minimum policy standards (as	The site is partially within Flood Risk Zone 2	The site is within Flood Risk Zone 1 or otherwise 'water	The site is partially within Flood Risk Zone 3 (a or b) and an 'exception test'	The site is predominantly within Flood Risk Zone 3a and

SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
and are prepared for the impacts of climate change – flooding from rivers and sea	benefits through restoration, regarding flood water storage or alleviation.	established in the LWMLP) in regard to flood risk.	Or Water bodies present on site, but the site is within Flood Risk Zone 1.	compatible’.	would be required Or The site is predominantly within Flood Risk Zone 2 an ‘exception test’ would be required.	identified as ‘highly vulnerable’ Or The site is within Flood Zone 3b and either ‘highly vulnerable’, ‘more vulnerable’ or ‘less vulnerable’ (i.e. development should not be permitted)
7b) To ensure that minerals and waste activities do not lead to an increase in flood risk and are prepared for the impacts of climate change – surface water flood risk	Restoration proposal would lead to outstanding benefits through restoration, regarding flood water storage or alleviation.	Proposals would lead to minimum policy standards (as established in the LWMLP) in regard to flood risk.	Proposal can avoid areas of any risk / mitigation can offset impacts from operational activities	Site is predominantly within an area of ‘low risk’	Site is predominantly within an area of ‘medium risk’	Site is predominantly within an area of ‘high risk’
8a) To minimise any impacts deriving from waste management and, or mineral	Restoration proposal would lead to outstanding	Restoration proposal would lead to small benefits through	A PRoW(s) or and, or bridleway and, or byway(s) borders the	There is no conflict between the proposal and any PRoW(s) or	The proposal would require the diversion of a PRoW(s) and, or	The proposal would lead to the loss of multiple PRoWs or bridleways or

SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
extraction in regard to human health and wellbeing – public amenity	benefits through restoration regarding accessible open space or recreation or sports provision.	restoration regarding accessible open space or recreation or sports provision.	proposal site.	bridleway(s) or byway(s).	bridleway(s) and, or byway(s) Or The proposal would lead to the loss of a PRoW(s) or bridleway(s) or byway(s).	byways.
8b) To minimise any impacts deriving from waste management and, or mineral extraction in regard to human health and wellbeing – bird strike hazard	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the prevention of impacts in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the prevention of impacts in the first instance.	Where applicable, such as where there is a lack of submitted or known information for the proposal	Restoration proposals unrelated to bird strike (e.g. would not increase the presence of birds)	Restoration proposal is for biodiversity gains that could increase the presence of birds, and is located on a known flightpath	Restoration proposal is for biodiversity gains that will increase the presence of birds (e.g. wetland creation), and is located on a known flightpath
9) To minimise any impacts on local amenity resulting from minerals or waste activities (e.g. noise,	It is not considered possible for significant positive impacts	It is not considered possible for positive impacts to be ensured,	Properties within 250m of the proposed and impacts can be	No properties within 250m of the site	Properties within 250m of the site and impacts cannot be easily	Any properties within 250m of the site with no capability of

SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
dust, vermin, odour)	to be ensured, as the criterion is focused on the minimisation of related impacts in the first instance.	as the criterion is focused on the minimisation of related impacts in the first instance.	mitigated		mitigated	mitigation
10) To minimise minerals and waste miles, ensure there is suitable transport infrastructure, and promote the sustainable transportation of minerals and waste	The proposal will see the movement of materials by sustainable means (appropriate connection to a rail depot or transhipment site; and, or appropriate connection to a wharf.)	The proposal has no objection from the County Highways Authority and access is directly onto an A-Road (as identified in the Lincolnshire Freight Strategy)	The proposal has no objection from the County Highways Authority, but access is not directly onto an A- Road (as identified in the Lincolnshire Freight Strategy) Or Access is directly onto a B-Road	Not Applicable	The proposal has an objection from the County Highways Authority regarding access arrangements however capability of being suitable.	The site, or proposal would conflict with identified transport infrastructure improvements or existing commitments
11) To ensure a steady and adequate supply of	The site significantly	The site is for mineral	The site is for mineral	All other	Not Applicable	Not Applicable

minerals to meet identified needs and avoid the sterilisation of minerals resources.	contributes to meeting mineral supply needs	extraction not considered significant in meeting mineral supply needs	extraction, however the proposal has issues with policy compliance (of the adopted LMWLP and emerging policies) or previous proposals have been refused planning permission (planning history).	proposals		
12) To promote the sustainable use of minerals.	The proposal is for an extension to an existing site for minerals extraction	The proposal is a new site for mineral extraction	Not Applicable	All other proposals	Not Applicable	Not Applicable
13) To ensure the effective restoration and appropriate after-use of mineral extraction sites	Restoration proposal would lead to outstanding benefits through restoration	Proposals would lead to minimum policy standards (as established in the LWMLP) in	Further information required	Proposals that do not require or involve a need for restoration	Restoration scheme is considered unsuitable.	It is considered that the nature of proposals would be deemed capable of having the potential significant negative

	(including but not limited to: biodiversity net gain, green infrastructure, recreation, flood water storage or the storage of water for agriculture or industry gain).	regard to (e.g.) biodiversity value or to social and, or economic gains.				impacts.
14) To move the management of waste up the waste hierarchy (prevention, re-use, recycling, other recovery, disposal)	Not Applicable	Not Applicable	Not Applicable	All proposals	Not Applicable	Not Applicable
15) To ensure a mix of types and scales of waste management facilities, and ensure adequate provision is made for waste disposal	Not Applicable	Not Applicable	Not Applicable	All proposals	Not Applicable	Not Applicable

SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
16) To protect and improve soil quality, in particular the County's best and most versatile agricultural land	The proposal is not on land in agricultural use or has no intrinsic value (Grade 4 or 5 ALC) And, where relevant Restoration proposals intended to improve original (ALC) soil quality grading.	The proposal is not on land in agricultural use or has no intrinsic value (Grade 4 or 5 ALC) And, where relevant Restoration proposals intended to reinstate original (ALC) soil quality grading.	Where relevant in specific circumstances	The proposal is not on land in agricultural use and, or has no intrinsic value (Grade 4 or 5 ALC)	Grade 3 ALC	Grade 1 ALC Or Grade 2 ALC
17) To promote economic growth and diversity across the County through opportunities arising from minerals and waste activities	It is considered that no single site or proposal would lead to a significant positive effect on employment opportunities.	The proposal will lead to job creation or retention on site	The site could conflict with neighbouring employment uses. Or Employment numbers not	No proposal is unrelated to activities associated with job creation or retention.	The site is proposed for an alternative employment use within a Local Plan or there is an unimplemented permission for an	The site is existing or safeguarded employment land in the relevant district Local Plan or has planning permission for employment use.

			provided.		employment use.	

Table 6: SA Framework for the assessment of site allocation options – proposed sites for waste management facilities

Proposed 2022 SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
1) To conserve and where possible enhance biodiversity and geodiversity designations, as well as natural habitats and protected species	Restoration proposal would lead to outstanding benefits through restoration in regard to biodiversity net gains.	Proposals would lead to minimum policy standards (as established in the LWMLP) in regard to biodiversity value.	No statutory habitat sites within 250m but potential impacts on designations that would need further assessment.	No statutory habitat sites within 250m	A temporary site with impacts on nature conservation designations, but mitigation possible.	Likely significant effects on a Habitats Site (as identified in the Habitats Regulations Assessment, including any Appropriate Assessment) or SSSI Or Sites that include or are adjacent to a Site of Special Scientific Interest (SSSI)
2) To conserve and where possible enhance the quality and character of landscapes and landscape features	Restoration proposal would lead to outstanding benefits through restoration regarding landscape.	The site is for landfill of an existing void that is required for restoration.	No specific landscape designation, however, has important landscape features but mitigation is	Where relevant in specific circumstances	The site is within the AONB but is a temporary facility (such as landfill which is required for landscape restoration of an existing mineral	The site is located within or adjacent to the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB).

			possible.		void) Or No specific landscape designation, however, has important landscape features and mitigation not considered possible	
3) To conserve and where possible enhance the historic environment (both above and below ground), built and cultural heritage, and their settings ²	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the conservation of assets in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the conservation of assets in the first instance.	There is considered to be the potential for an impact on the significance of a designated or non-designated historic environment asset, although mitigation is	No impact on any designated or non-designated historic environment assets.	There is considered to be an impact on a designated or non-designated historic environment asset or its setting, but mitigation is possible. Potential impacts have been	There is considered to be an impact that could affect the significance of a designated or non-designated historic environment asset or its setting with no mitigation suitable. Or The site includes or

² Site Appraisals to be undertaken by Place Services Historic Environment specialists

			possible.		highlighted that might require preservation in situ.	is adjacent to a site or building with a nationally recognised designation (Scheduled Monuments, Conservation Areas, Listed Buildings, Registered Historic Battlefields and Registered Parks and Gardens) or includes or is adjacent to Ancient Woodland
4) To maintain and where possible improve the quality and sustainable use of ground and surface water resources	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the conservation of water in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the conservation of water in the first instance.	The site is partly within a Source Protection Zone. Or The site is outside groundwater protection zones (SPZs) but sits above principle or secondary	There are no known constraints regarding surface or groundwater.	The site is located within a ground water Source Protection Zone. Or There are known constraints regarding surface water.	The site is located within a ground water Source Protection Zone. And There are known constraints regarding surface water.

			aquifers. Or More detailed assessment required.			
5) To maintain and where possible improve air quality	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the maintenance of air quality in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the maintenance of air quality in the first instance.	There are potential air quality issues associated with bioaerosols.	There are no Air Quality Management Areas in the immediate area.	The site is in close proximity to an Air Quality Management Area Or There are identified air quality issues associated with bioaerosols.	The site is within an Air Quality Management Area and will result in additional road transport movements.
6) To ensure that, where possible, new development is carbon neutral	Not Applicable	The proposal would lead to the generation of energy from waste	Proposal has potential for energy from waste through type of waste management facility, however	All other proposals.	Not Applicable (Impacts would only be identifiable at the planning application stage and in adherence	Not Applicable (Impacts would only be identifiable at the planning application stage and in adherence to

			no proposal for energy from waste submitted.		to relevant Plan policies.)	relevant Plan policies.)
7a) To ensure that minerals and waste activities do not lead to an increase in flood risk and are prepared for the impacts of climate change – flooding from rivers and the sea	Restoration proposal would lead to outstanding benefits through restoration, regarding flood water storage or alleviation.	Proposals would lead to minimum policy standards (as established in the LWMLP) in regard to flood risk.	The site is partially within Flood Risk Zone 2 Or Water bodies present on site, but the site is within Flood Risk Zone 1.	The site is within Flood Risk Zone 1 or otherwise 'water compatible'.	The site is partially within Flood Risk Zone 3 (a or b) and an 'exception test' would be required Or The site is predominantly within Flood Risk Zone 2 an 'exception test' would be required.	The site is predominantly within Flood Risk Zone 3a and identified as 'highly vulnerable' Or The site is within Flood Zone 3b and either 'highly vulnerable', 'more vulnerable' or 'less vulnerable' (i.e. development should not be permitted)
7b) To ensure that minerals and waste activities do not lead to an increase in flood risk and are prepared for the impacts of climate	Restoration proposal would lead to outstanding benefits through restoration,	Proposals would lead to minimum policy standards (as established in the LWMLP) in	Proposal can avoid areas of any risk / mitigation can offset impacts from operational	Site is predominantly within an area of 'low risk'	Site is predominantly within an area of 'medium risk'	Site is predominantly within an area of 'high risk'

change – surface water flood risk	regarding flood water storage or alleviation.	regard to flood risk.	activities			
8a) To minimise any impacts deriving from waste management and, or mineral extraction in regard to human health and wellbeing – public amenity	Restoration proposal would lead to outstanding benefits through restoration regarding accessible open space or recreation or sports provision.	Restoration proposal would lead to small benefits through restoration regarding accessible open space or recreation or sports provision.	A PRoW(s) or and, or bridleway and, or byway(s) borders the proposal site.	There is no conflict between the proposal and any PRoW(s) or bridleway(s) or byway(s) Or For landfill proposals – no sensitive receptors (housing, schools, health, community uses) within 250m of the site	The proposal would require the diversion of a PRoW(s) and, or bridleway(s) and, or byway(s) Or The proposal would lead to the loss of a PRoW(s) or bridleway(s) or byway(s). Or For landfill proposals – sensitive receptors (housing, schools, health, community uses) within 250m of the site, but mitigation possible	The proposal would lead to the loss of multiple PRoWs or bridleways or byways.

					or proposed (e.g. through buffers)	
8b) To minimise any impacts deriving from waste management and, or mineral extraction in regard to human health and wellbeing – bird strike hazard	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the prevention of impacts in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the prevention of impacts in the first instance.	Where applicable, such as where there is a lack of submitted or known information for the proposal	Restoration proposals unrelated to bird strike (e.g. would not increase the presence of birds)	Restoration proposal is for biodiversity gains that could increase the presence of birds, and is located on a known flightpath	Restoration proposal is for biodiversity gains that will increase the presence of birds (e.g. wetland creation), and is located on a known flightpath
9) To minimise any impacts on local amenity resulting from minerals or waste activities (e.g. noise, dust, vermin, odour)	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the minimisation of	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the minimisation of related impacts	Properties within 250m of the proposed and impacts can be mitigated	No properties within 250m of the site Or For landfill proposals - site is not within a military or civil airfield	Properties within 250m of the site and impacts cannot be easily mitigated	Any properties within 250m of the site with no capability of mitigation Or Bioaerosols will be emitted through the proposal with no

	related impacts in the first instance.	in the first instance.		safeguarding area (regarding bird strike hazards).		capability of mitigation Or For landfill proposals - site is within a military or civil airfield safeguarding area (regarding bird strike hazards).
10) To minimise minerals and waste miles, ensure there is suitable transport infrastructure, and promote the sustainable transportation of minerals and waste	The proposal will see the movement of materials by sustainable means (appropriate connection to a rail depot or transhipment site; and, or appropriate connection to a wharf.)	The proposal has no objection from the County Highways Authority and access is directly onto an A- Road (as identified in the Lincolnshire Freight Strategy)	The proposal has no objection from the County Highways Authority, but access is not directly onto an A- Road (as identified in the Lincolnshire Freight Strategy) Or Access is directly onto a B-Road	Not Applicable	The proposal has an objection from the County Highways Authority regarding access arrangements however capability of being suitable.	The site or proposal would conflict with identified transport infrastructure improvements or existing commitments

Proposed 2022 SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
11) To ensure a steady and adequate supply of minerals to meet identified needs and avoid the sterilisation of minerals resources.	Not Applicable	Not Applicable	Not Applicable	All proposals	Not Applicable	Not Applicable
12) To promote the sustainable use of minerals.	Not Applicable	Not Applicable	Not Applicable	All proposals	Not Applicable	Not Applicable
13) To ensure the effective restoration and appropriate after-use of mineral extraction sites	Restoration proposal would lead to outstanding benefits through restoration (including but not limited to: biodiversity net gain, green infrastructure, recreation, flood water storage or the storage of water for	Proposals would lead to minimum policy standards (as established in the LWMLP) in regard to (e.g.) biodiversity value or to social and or economic gains.	Further information required	Proposals that do not require or involve a need for restoration	Restoration scheme is considered unsuitable.	It is considered that the nature of proposals would be deemed capable of having the potential significant negative impacts.

	agriculture or industry gain).					
14) To move the management of waste up the waste hierarchy (prevention, re-use, recycling, other recovery, disposal)	The nature of the proposal diverts waste from being landfilled (recycling or re-use).	The nature of the proposal diverts waste from being landfilled (other recovery).	The proposal is for disposal (potential effects and justification addressed through narrative in the appraisal).	Not Applicable	The restoration proposal requires the importation of materials.	No potential proposals have been deemed capable of having significant negative impacts.
15) To ensure a mix of types and scales of waste management facilities, and ensure adequate provision is made for waste disposal	The site significantly contributes to meeting waste management capacity needs	The site is for a waste management facility not considered significant in meeting waste management capacity needs	The site is for a waste management facility, however the proposal has issues with policy compliance (of the adopted LMWLP and emerging policies) or previous proposals have been refused planning permission	All other proposals	Not Applicable	Not Applicable

			(planning history).			
16) To protect and improve soil quality, in particular the County's best and most versatile agricultural land	The proposal is not on land in agricultural use or has no intrinsic value (Grade 4 or 5 ALC) And, where relevant Restoration proposals intended to improve original (ALC) soil quality grading.	The proposal is not on land in agricultural use or has no intrinsic value (Grade 4 or 5 ALC) And, where relevant Restoration proposals intended to reinstate original (ALC) soil quality grading.	Where relevant in specific circumstances	The proposal is not on land in agricultural use or has no intrinsic value (Grade 4 or 5 ALC)	Grade 3 ALC	Grade 1 ALC Or Grade 2 ALC
17) To promote economic growth and diversity across the County through opportunities arising from minerals and	It is considered that no single site or proposal would lead to a significant positive effect on employment	The proposal will lead to job creation on site	The site could conflict with neighbouring employment uses. Or	No increase in employment opportunities on site.	The site is proposed for an alternative employment use within a Local Plan or there is an unimplemented	The site is an existing or safeguarded employment land in the district Local Plan or has planning permission for

Proposed 2022 SA Objective	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
waste activities	opportunities.		Employment numbers not provided.		permission for an employment use.	employment use.

3.6 The Approach to Identifying Effects

The SA of the Plan review within the SA Environmental Report will assess the review's proposed Plan content against the SA Objectives and key questions (criteria) outlined in the above frameworks. The aim is to assess the sustainability effects of the document following implementation. The assessment will look at the secondary, cumulative, synergistic, short, medium and long-term permanent and temporary effects in accordance with Annex 1 of the SA Directive, as well as assess alternatives and suggest mitigation measures where appropriate. The findings will be accompanied by an appraisal matrix which will document the effects over time.

The content to be included within the appraisal responds to those 'significant effects' of the policy or element of the Plan review subject to appraisal. Appraisals will also look at the following:

- Temporal effects;
- Secondary, Cumulative and Synergistic effects;
- The assessment of Reasonable Alternatives; and
- Proposed mitigation measures and recommendations.

These, and 'significant effects' are further described in the following sub-sections.

3.6.1 Description of 'Significant Effects'

The strength of impacts can vary dependant on the relevance of the policy content to certain SA Objectives or themes. Where the policies have been appraised against the SA Objectives the basis for making judgements within the assessment is identified within the following key:

Possible impact	Basis for judgement
++	Strong prospect of there being significant positive impacts
+	Strong prospect of there being minor positive impacts
?	Possibility of either positive or negative impacts, or general uncertainty where there is a lack on current information (to be elaborated in commentary in each instance)
0	No impact or neutral effects
-	Strong prospect of there being minor negative impacts, however mitigation would be possible, or issues can be rectified
--	Strong prospect of there being significant negative impacts with mitigation unlikely to be possible (pending further investigation) or further work is needed to explore whether issues can be rectified
Not Applicable	Not Applicable to the scope or context of the assessed content

Commentary is also included to describe the significant effects of the policy on the sustainability objectives.

A Note on ‘Uncertain Impacts or Effects’ in the SA:

Within the following SA Framework, a degree of impact is highlighted as ‘uncertain’. It should be acknowledged that within the assessment of options ‘uncertain’ impacts can ‘lean’ towards either positive or negative impacts, and these additional degrees of impact will be highlighted within option assessments where relevant.

Additionally, it should also be acknowledged that ‘uncertain’ impacts will only be highlighted where ‘positive’ or ‘negative’ impacts cannot be predicted with any assurance or where there is a lack of reliable quantitative information that can be used to predict impacts (or when the only available information is considered qualitative or anecdotal).

3.6.2 Description of ‘Temporal Effects’

The assessment of the Plan review’s content should recognise that impacts may vary over time. The SA Environmental Report will highlight where effects may change over time in those instances where evidence exists to support such judgements. Should no evidence exist, then temporal effects will be based on reasonable assumptions, which will also be highlighted and signposted within the SA Environmental Report.

3.6.3 Description of ‘Secondary, Cumulative and Synergistic Effects’

In addition to those effects that may arise indirectly (secondary effects), relationships between different elements of the Plan review will be assessed in order to highlight any possible strengthening or weakening of impacts from their implementation together. Cumulative effects respond to impacts occurring directly from two different elements together, and synergistic effects are those that offer a strengthening or worsening of more than one element of the Plan that is greater than any individual impact. Additionally, any cumulative impacts with other plans or projects will be highlighted within the assessment.

3.6.4 Description of ‘Alternatives Considered’

Planning Practice Guidance (PPG) states that reasonable alternatives are the different realistic options considered by the plan-maker in developing the policies in its plan. They must be sufficiently distinct to highlight the different sustainability implications of each so that meaningful comparisons can be made. The alternatives must be realistic and deliverable.

3.6.5 Description of ‘Proposed Mitigation Measures and Recommendations’

Negative or uncertain impacts may be highlighted. As such, mitigation measures may be needed, and these will be highlighted in this section for each policy where relevant. In addition to this, this section will also include any recommendations that may maximise sustainability benefits.

4. Next Steps

4.1 Consulting on the Scope of the SA (Stage A5)

This SA Scoping Report has been consulted on with the statutory consultees, those being:

- The Environment Agency
- Historic England
- Natural England

The comments and recommendations received through this consultation exercise can be found in Appendix 3 of this Report, and the majority of the recommendations have been factored into this Report.

Further consultation is to be undertaken on the Plan and this SA Scoping Report with the public and other relevant and interested bodies. The 'scope' covers all of the elements within this Scoping Report and comments will be welcomed regarding:

1. Have all of the key Plans and Programmes (relevant to minerals planning) been identified and are they are relevant?
2. Is the level of baseline information collected suitable, and are there any gaps (relevant to minerals planning)?
3. Are there any additional environmental problems within the Plan area (relevant to minerals planning) that have not been identified?
4. Are the SA Objectives and 'key questions (criteria)' (the SA framework) appropriate?
5. Are the Minerals and Waste site assessment SA Frameworks appropriate?

4.2 Developing and refining alternatives and assessing effects (Stage B)

Once the 'scope' of the SA has been consulted on, and any required or suggested amendments made, the process of assessing the Plan review can begin. As set out within Stage B of the SA process, this will comprise of six key processes as outlined in the sub-sections below.

4.2.1 B1: Testing the Plan objectives against the SA Objectives

The Plan review will likely include a number of key objectives. This section of the Plan review will represent the key aims that the plan-makers wish to achieve in formulating the Plan review document.

Although findings will be presented to the plan-makers at an early stage as part of an iterative process, the SA Environmental Report (Stage C below) will present these findings in the form of a matrix that explores whether the objectives are compatible and whether they need to be expanded to ensure that the Plan review seeks to minimise any possible environmental effects and maximise those that are indicatively positive. A narrative will be provided that will make any such recommendations.

4.2.2 B2: Developing strategic alternatives

A key part of the SA process is the identification of all 'reasonable' alternatives to the Plan review's content. 'Reasonable' alternatives need to be fully considered by the plan-makers and assessed within the SA Environmental Report. They must be realistic, achievable and sufficiently distinct from the preferred strategy to warrant separate assessment.

4.2.3 B3: Predicting the effects of the draft Plan including alternatives

It is integral that all elements of the Plan review that may give rise to any environmental, social or economic effects are assessed within the SA against the SA Objectives, as well as the alternative approaches as required of Stage B2. Commonly, this includes all policies and site allocation options.

Plan review content and alternative approaches must be assessed to the same level of detail to create a 'level playing field' and against the SA Framework presented within this Scoping Report. This will be done using quantitative information as far as possible. Where there are data gaps in the assessment, assumptions ('qualitative' judgements) will be made consistently and fairly and documented in the SA Environmental Report.

4.2.4 B4: Evaluating the effects of the draft Plan, including alternatives

In addition to the process explained in Stage B3, an evaluation of the effects of the Plan review and alternatives is required of the SA process. This will be presented in the form of a narrative that explains the various merits and demerits of the Plan Review and alternative approaches and whether mitigation can be implemented or sought to eradicate or minimise any negative effects.

In this sense, Stage B4 will represent a 'policy-on' consideration (i.e. will the policies of the Plan, when applied, minimise or eradicate effects) to the 'policy-off' assessment of Stage B3 (with no consideration of the application of planning policy). This narrative will also explain the reasons for selecting the preferred strategy in light of the reasonable alternatives identified.

4.2.5 B5: Considering ways of mitigating adverse effects

Stage B5 will include the consideration of whether mitigation can be applied to ensure that any of the Plan review's content can be made acceptable in planning terms. This will be presented in the form of recommendations. Although the iterative nature of SA and plan-making will ensure that recommendations are factored into the final Plan document, the SA Environmental Report will chronicle those recommendations made throughout the process, and whether they have been taken on-board. This stage will also include recommendations for maximising positive effects, where possible.

4.2.6 B6: Proposing measures to monitor the environmental effects of Plan implementation

The last step of Stage B is to include a list of possible indicators that can be collected to monitor those effects highlighted within the SA Environmental Report. These will include suggested data

sources relevant for all of the SA Objectives and 'key questions (criteria)' included within this Scoping Report.

4.3 Preparation of an Environmental Report (Stage C)

Stage C includes the amalgamation of Stages B above into a coherent report that outlines the findings of the assessment and where the requirements of the SA process are met. At this stage, an update of the baseline information and review of relevant plans and programmes will be presented after being fed into the assessment. The SA Environmental Report will also be accompanied by a Non-Technical Summary that outlines the key findings from the assessment of the Plan and those reasonable alternatives identified.

4.4 Consulting on the draft Plan and the SA Environmental Report

The SA Environmental Report will again be subject to consultation from the statutory consultees, as well as the public. The SA Environmental Report will be made available alongside the Plan review for the Pre-submission consultation (Regulation 19). Consultation is required of the Plan and the SA Environmental Report at this stage in order for the Plan to be found sound in planning terms.

Appendix 1: Baseline Information

A1.1 Minerals

A1.1.1 Introduction

The need for minerals extraction is closely linked to construction, demolition and excavation waste (CDEW) arisings. Such arisings are a source for recyclable aggregates and may be particularly important in relation to planned growth in certain areas in Lincolnshire. Planned growth in Lincolnshire, combined with the preference for development to take place on previously developed land suggests that indigenous supply of secondary and recycled aggregate is also likely to be significant.

A1.1.2 Hierarchical Approach

The NPPF requires that a hierarchical approach is employed in considering mineral supply, where the first consideration should be reduction in the quantity of material used and reduction of wastes generated. The second consideration should be to optimise the use of recycled and secondary material, closely associated with CDEW waste management and the third is to secure the remaining required material through primary extraction.

A1.1.3 Planned Provision

Responding to the third consideration in the minerals supply hierarchy, extraction will be more prevalent where recyclable aggregate waste arisings are not effectively managed and utilised. Lincolnshire is host to three areas of sand and gravel production: Lincoln and Trent Valley, Central Lincolnshire and South Lincolnshire. The main materials of economic significance are the sands and gravels; however, Lincolnshire also produces limestone. The planned annual provisions for both aggregates can be found below:

Table 7: Delivery of CSDMP planned annual provision of sand and gravel

Sand and gravel production area	CSDMP planned annual provision (mt)	2014 sales (mt)	2015 sales (mt)	2016 sales (mt)	2017 sales (mt)	2018 sales (mt)	Average annual sales (mt)	Planned annual provision delivered up to 31.12.18
Lincoln and Trent Valley	1.00	1.07	1.02	1.131	1.18	1.13	1.11	111%
Central Lincolnshire	0.5	0.36	0.41	0.35	0.26	0.34	0.35	70%
South Lincolnshire	0.87	0.72	0.76	0.69	0.94	0.85	0.79	91%
Lincolnshire Total	2.37	2.15	2.19	2.17	2.38	2.32	2.24	95%

Source: Review of the Lincolnshire Minerals and Waste Local Plan, February 2021

The table above shows that the Lincoln and Trent Valley production area exceeded the planned provision rate, this is attributed to the increasing demand from Nottinghamshire and other external counties. Central Lincolnshire has produced significantly lower than the planned provision, this is attributed to the demand in the area and the quarries' location, resulting in an inability to serve wider areas. South Lincolnshire production has also been lower than planned provision but to a lesser extent, this is again attributed to the demand in the area, however, this low demand within the County has been offset by demand from the East of England. Sand and gravel are by far the most common extracted mineral in the county, being produced at the active quarries found below.

- Baston No 1 Quarry
- Baston No 2 Quarry
- Baston Manor Pit Quarry
- Kettleby Quarry
- King Street Quarry
- Kirkby on Bain
- North Kelsey Road Quarry
- Norton Bottoms Quarry
- Norton Disney Quarry
- Red Barn Pit Quarry
- Swinderby Airfield Quarry
- Tattershall (Park Farm Quarry)
- West Deeping Quarry
- Whisby Quarry

Extensions to Whisby Quarry and Kirkby on Bain Quarry have also been granted planning permission subject to s.106 planning obligations. Further sites have also been allocated to ensure that the planned provision of minerals is met these can be found in the table below:

Table 8: LMWLP allocated sand and gravel quarries in Lincolnshire

Site Reference	Name	Production Area	Total Reserve (minimum quantity to be working during plan period)	Type
MS04-LT	Swinderby Airfield Quarry	Lincoln Trent Valley	7.0mt (of which 2.25mt to be worked during plan period)	Extension
MS05-LT	Norton Bottoms Quarry Stapleford	Lincoln Trent Valley	6.8mt (of which 2.31mt to be worked during plan period)	Extension
MS07/08-CL	Kettleby Quarry, Bigby	Central Lincolnshire	3.25mt (of which 0.86mt to be worked during plan period)	Extension
MS09-CL	North Kelsey Road Quarry, Caistor	Central Lincolnshire	0.15mt (of which 0.13mt to be worked during plan period)	Extension
MS15-CL	Kirkby on Bain (Phase 2)	Central Lincolnshire	3.1mt (of which 0.22mt to be worked during plan period)	Extension
MS25-SL	Manor Farm, Greatford	South Lincolnshire	3mt (of which 2.79mt to be worked during plan period)	New replacement site
MS27-SL	Baston No.2 Quarry, Langtoft (Phase 2)	South Lincolnshire	2.5mt (of which 1.40mt to be worked during plan period)	Extension
MS29-SL	West Deeping	South Lincolnshire	2.2mt (of which 1.16mt to be worked during plan period)	Extension

Source: Lincolnshire Minerals and Waste Local Plan, 2016

The sites detailed in the above table are due to be delivered over the plan period, and the delivery dates and status of each allocation can be found in the table below:

Table 9: Delivery of mineral site allocations (as of September 2020)

Allocation	Projected delivery	Status
MS04-LT	2025	Allocation not due to be delivered until later in the Plan period. No issues identified.
MS05-LT	2020	Planning permission granted (PL/0097/17) on 7 June 2019
MS07/08-CL	2022	Allocation not due to be delivered until later in the Plan period. No issues identified.
MS09-CL	2019	No planning application received to date.
MS15-CL	2030	Allocation not due to be delivered until later in the Plan period. No issues identified.
MS25-SL	2022	Allocation not due to be delivered until later in the Plan period. No issues identified.
MS27-SL	2025	Allocation not due to be delivered until later in the Plan period. No issues identified.
MS29-SL	2027	Allocation not due to be delivered until later in the Plan period. No issues identified.

Source: Review of the Lincolnshire Minerals and Waste Local Plan, February 2021

In addition to the sites above, additional sand and gravel sites located on non-allocated were given permission in the period of 1 June 2016 to 31 December 2019. Details of these applications can be found in the table below along with the reasons for the permission being granted.

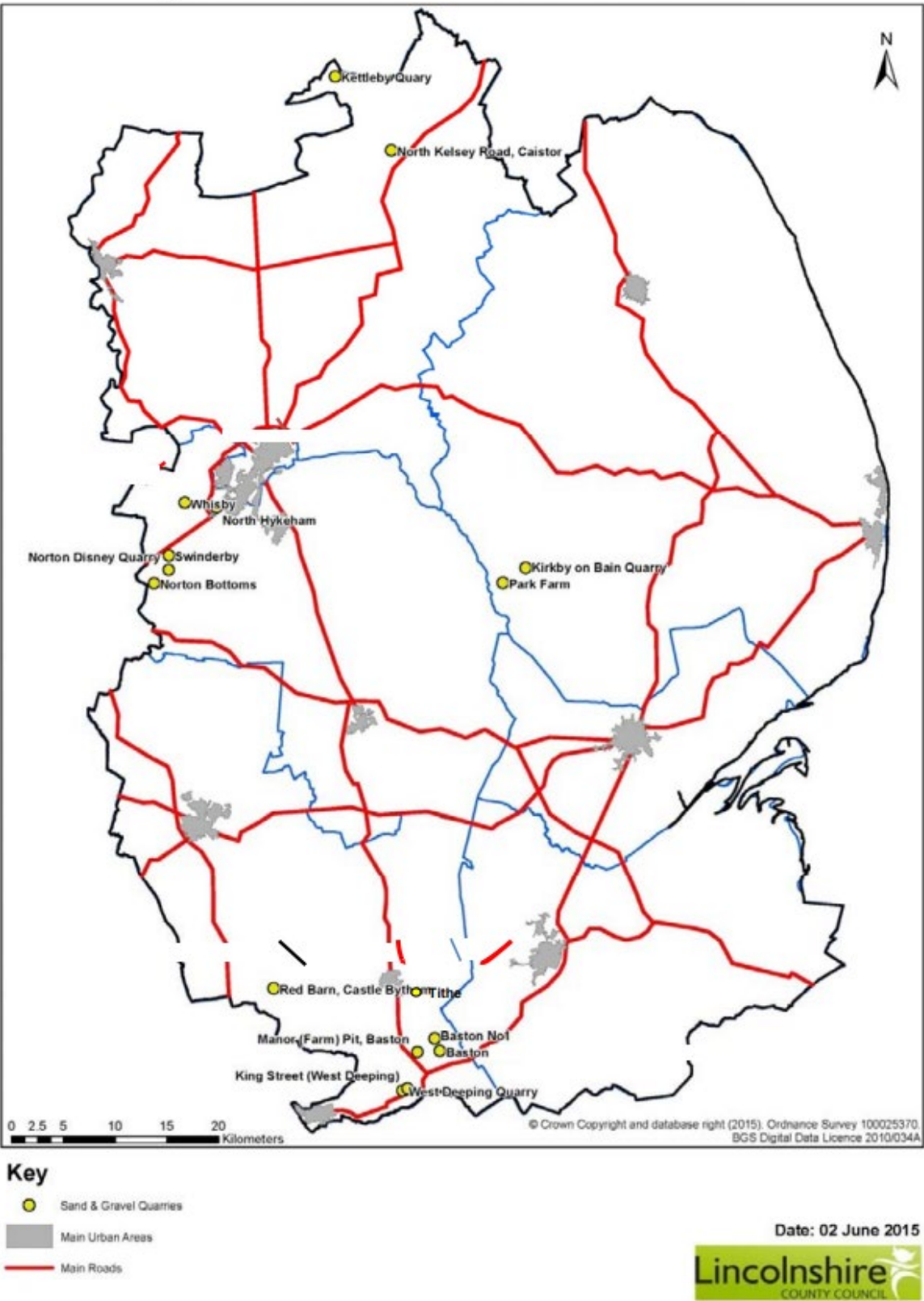
Table 10: Planning permissions for sand and gravel extraction granted on non-allocated land (1 June 2016 to 31 December 2019)

Planning permission	Application details	Reason for permission
PL/0042/15	Western and Eastern extensions to Woodhall Spa (Kirby on Bain) Quarry, providing 3.5mt of sand and gravel	Considered against policy M4 – allows for the granting of planning permission for non-allocated sites.
PL/0126/17	To extract 183,000 tonnes of sand and gravel at Tithe Farm Pastures, Tithe Farm, Langtoft	Incidental extraction as a result of installation of an agricultural irrigation reservoir.
(E)S176/189/0443/16	Woodhall Spa (Kirkby on Bain) Quarry, S73 application to reduce the standoff between the extraction area and the adjacent banks of the Old River Bain, releasing an additional 50,000 to 70,000 tonnes of sand and gravel.	Considered against policy M4 – allows for the granting of planning permission for non-allocated sites.
PL/0016/19	For the extraction of 35,821 tonnes of sand and gravel, for the construction of two new lakes and associated holiday home accommodation at Westmoor Farm, North Kesley Road, Caistor	Considered against policy M4 – allows for the granting of planning permission for non-allocated sites.
PL/0015/19	For the extraction of 350,000 tonnes of sand and gravel as an extension to West Deeping Quarry	Considered against policy M4 – allows for the granting of planning permission for non-allocated sites.

Source: Review of the Lincolnshire Minerals and Waste Local Plan, February 2021

Sand and gravel deposits are concentrated in the south, west and centre of the county and particularly in the districts of North and South Kesteven and East Lindsey. Sand and gravel deposits are far less abundant in the north to north-east of Lincolnshire. Sand and gravel extracted in Lincolnshire is used as a raw material to produce, amongst other things, concrete and asphalt. The spatial distribution of these sites can be seen in the figure below, which shows the 16 sand and gravel quarries in Lincolnshire. Two sites are located in the north, whilst five are located south west of Lincoln. Two are located centrally and a further seven are located in the broad area of Bourne, Market Deeping and Stamford. The map does not include dormant sites.

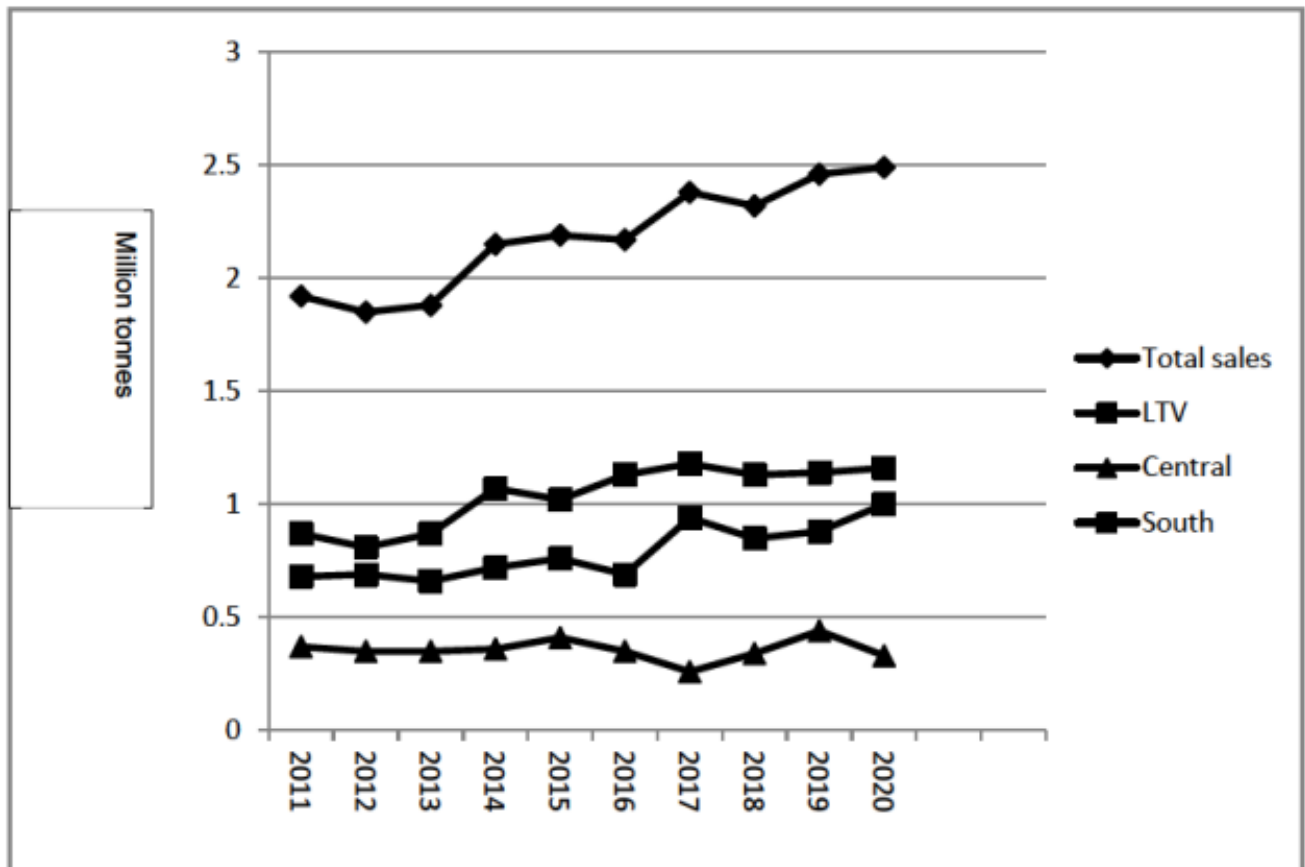
Figure 2: Sand and gravel quarries in Lincolnshire (excluding dormant sites)



Source: Lincolnshire County Council, 2021

The figure (graph) below shows sand and gravel sales by area. The graph shows that sales have broadly remained the same between 2011 and 2020 in the central area, whilst there has been a general uplift in sales in both the LTV and southern areas. Total sales have increased between 2011 and 2020.

Figure 3: Lincolnshire Sand and Gravel Sales by production area 2011– 2020.



Source: Lincolnshire County Council, 2021

In more detail, the figure shows that Sand and Gravel Sales have remained relatively constant over the plan period. Sales peaked in 2020 at 2.49Mt, troughed in 2012 at 1.85Mt and maintained a ten-year average of roughly 2.18Mtpa. The ten-year average is below the Minerals and Waste Local Plan annual apportionment of 2.37mt by roughly 0.19mt.

The LMWLP must ensure that a landbank of permitted reserves of at least 7 years within each of the three Production Areas and for limestone aggregates. The tables below contain the landbank of sand and gravel and limestone aggregates for the period of 2014 to 2018.

Table 11: Sand and gravel landbanks (2014 to 2020)

Sand and gravel production area	Landbank as at 31.12.14 (years)	Landbank as at 31.12.15 (years)	Landbank as at 31.12.16 (years)	Landbank as at 31.12.17 (years)	Landbank as at 31.12.18 (years)	Landbank as at 31.12.20 (years)
Lincoln and Trent Valley	10.9	13.0	9.6	8.0	8.5	10.37
Central Lincolnshire	8.4	7.5	7.3	15.9	15.7	10.84
South Lincolnshire	7.9	10.8	10.6	8.7	7.8	5.64
Lincolnshire Total	9.3	11.0	9.5	9.8	9.6	8.73

Source: Review of the Lincolnshire Minerals and Waste Local Plan, February 2021

The table below calculates the landbank reserves of Lincolnshire using three alternative methodologies, these are: the Sub Regional Apportionment (SRA), the Core Strategy and Development Management Policies (CSDMP); and the 10 year average annual sales for the County. The SRA is considered to be an out of data methodology by the East Midlands Aggregates Working Party (EMAWP), however, the NPPF requires that it be a consideration.

Table 12: Landbank of sand and gravel based on alternative provision rates (as at 31 December 2020)

Production Area	Permitted Reserves as at 31.12.20 (mt)	Annual rate based on SRA (mt)	Landbank based on SRA (years)	Annual rate based on LMWLP (mt)	Landbank based on LMWLP	Annual rate base on 10 year average sales (mt)	Landbank based on 10 year average sale (years)
Lincoln and Trent Valley	10.37	Not Applicable	Not Applicable	1.00	10.37	1.04	9.97
Central Lincolnshire	5.42	Not Applicable	Not Applicable	0.5	10.84	0.35	15.49
South Lincolnshire	4.91	Not Applicable	Not Applicable	0.87	5.64	0.79	6.22

Production Area	Permitted Reserves as at 31.12.20 (mt)	Annual rate based on SRA (mt)	Landbank based on SRA (years)	Annual rate based on LMWLP (mt)	Landbank based on LMWLP	Annual rate base on 10 year average sales (mt)	Landbank based on 10 year average sale (years)
Lincolnshire Total	20.70	3.28	6.31	2.37	8.73	2.18	9.50

Source: Lincolnshire Local Aggregate Assessment (reporting 2020 data), September 2021

As stated above, Lincolnshire also produces limestone aggregate and as such a planned annual provision is also in place, details of this can be found in the table below.

Table 13: Delivery of CSDMP planned annual provision of limestone aggregate

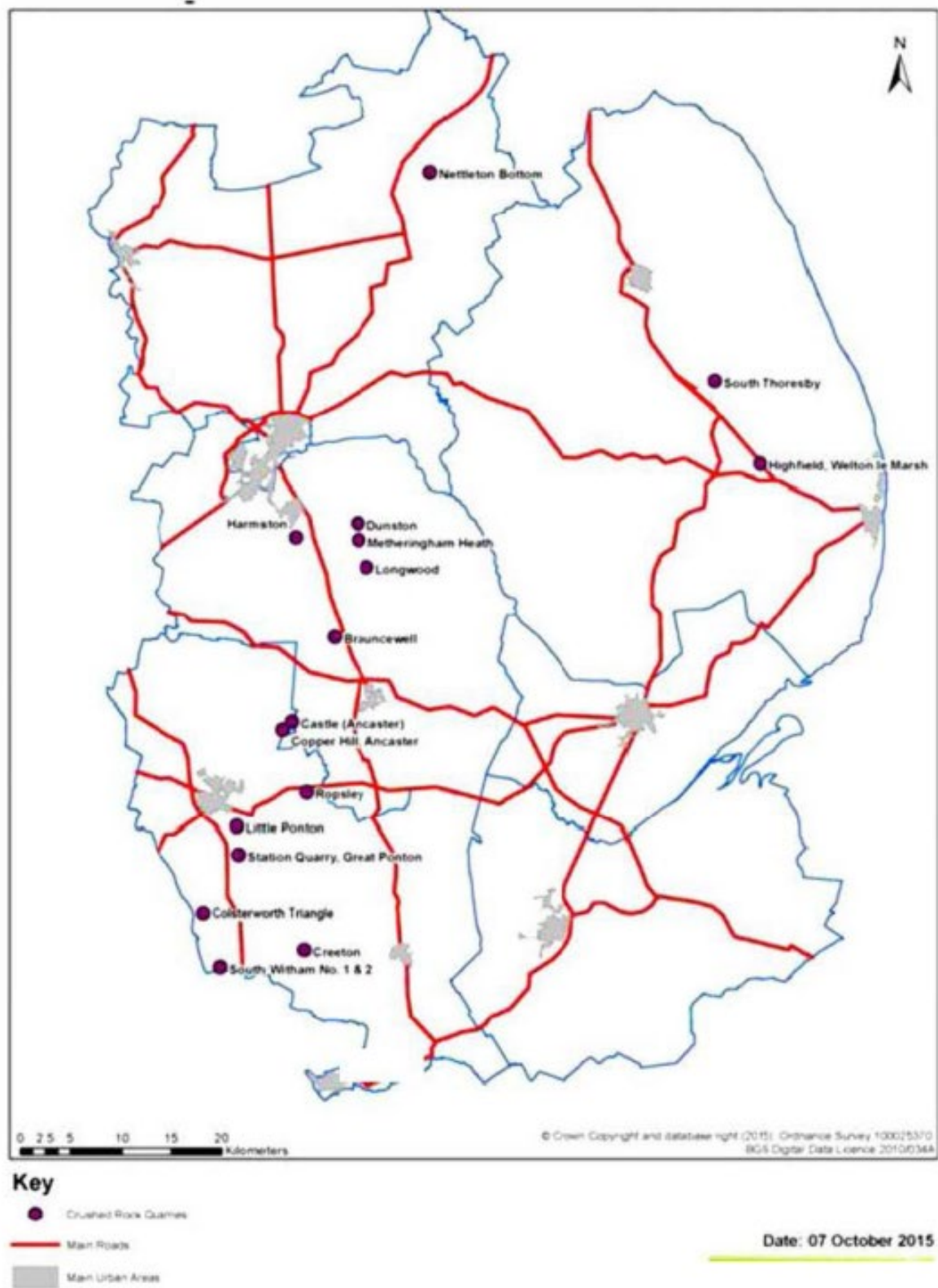
CSDMP planned annual provision (mt)	2014 sales (mt)	2015 sales (mt)	2016 sales (mt)	2017 sales (mt)	2018 sales (mt)	2019 sales (mt)	2020 sales (mt)	Average annual sales (mt)	Planned annual provision delivered up to 31.12.18
0.62	0.38	0.43	0.76	0.85	1.28	1.45	1.17	1.30	119%

Source: Review of the Lincolnshire Minerals and Waste Local Plan, February 2021

Crushed rock (in the form of limestone and chalk) is extracted across the south-west of the County at 13 active quarries. Similarly, to sand and gravel, these quarries are primarily found in the districts of North and South Kesteven. Crushed Rock quarries are far less abundant in all other areas of the County but can be found in West and East Lindsey (one or two respectively).

The spatial distribution of these sites is mapped below. The map shows that there are 16 crushed rock quarries in Lincolnshire. The majority of the sites are located where deposits are found, in the central western and southern western areas of the County.

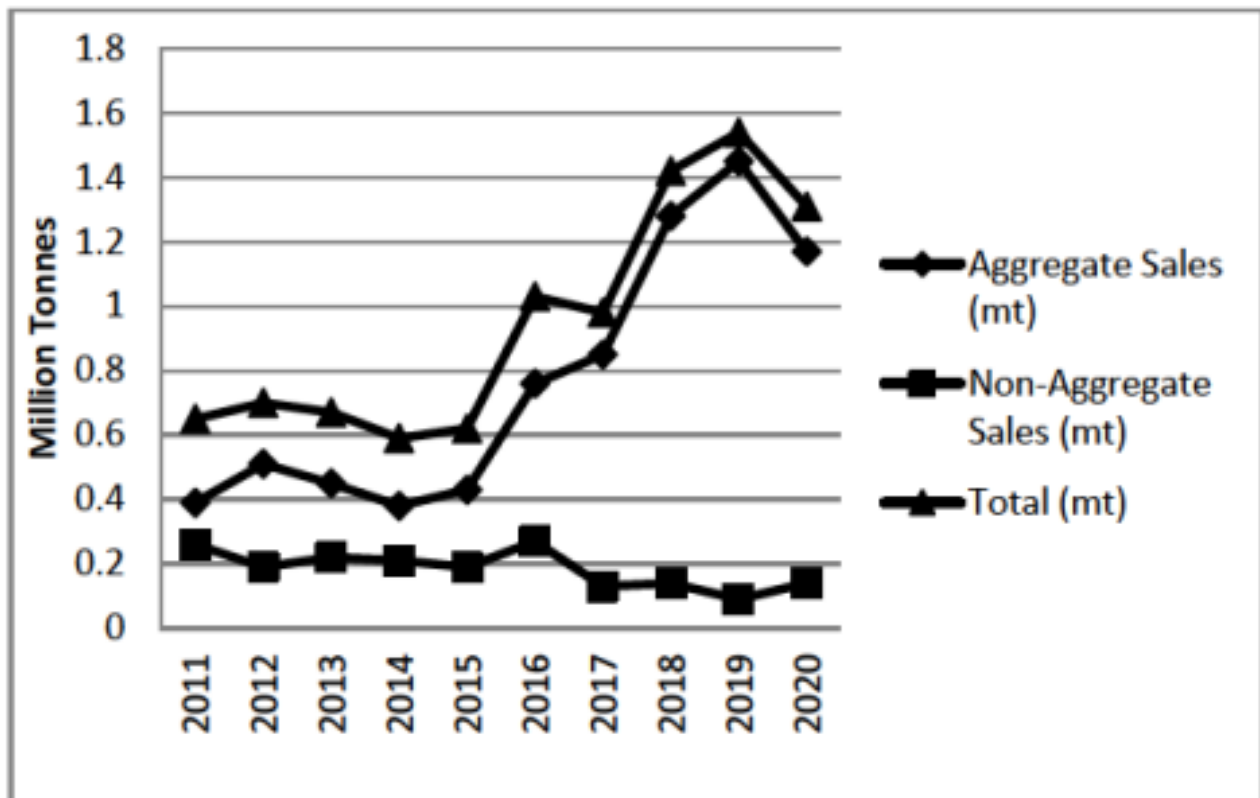
Figure 4: Crushed rock quarries in Lincolnshire (excluding dormant sites)



Source: Lincolnshire County Council (2021)

Trends in sales for limestone extracted in Lincolnshire indicate a significant general uplift in total sales, mostly attributable to aggregate sales, between 2011 and 2019. These have dropped slightly from 2019 to 2020. Non-aggregate sales are lower than aggregate sales and have remained broadly consistent between 2011 and 2020. This information can be seen in the figure below.

Figure 5: Trends in sales for Limestone extracted in Lincolnshire 2011-2020



Source: Lincolnshire County Council, 2021

In more detail, the figure shows that the sales of Limestone aggregates have increased dramatically over the plan period. Aggregate sales peaked in 2019 at 1.45mt and non-aggregate sales peaked in 2016 at 0.27mt. Sales maintained a ten year average of 0.77mt and 0.17mt respectively. The sales of aggregate are above the annual rates outlined within the LWMLP at 0.62mt.

A1.1.4 Recycled Aggregates

Secondary and recycled aggregates are considered an alternate source of aggregate. 'Recycled' aggregate is derived from reprocessing inorganic materials previously used in construction. 'Secondary' aggregates are created as by-product of a construction or industrial process.

Reusing these materials achieves two things, the first being a reduction in the need to extract primary aggregate and the second being the reduced need to dispose of waste. Both benefits offer economic, environmental and social benefits.

Construction, Demolition and Excavation (CDE) waste arisings are a source for recyclable aggregates and may be particularly important in relation to planned growth in certain areas in Lincolnshire.

293,507t of recycled aggregate was produced in Lincolnshire in 2019. The Lincolnshire area contains a number of aggregate recycling sites, however, as some of these sites are associated with other minerals and, or waste sites they are temporary in nature. A full breakdown of these sites can be found in the table below:

Table 14: Construction, demolition and excavation waste recycling sites in Lincolnshire (2020)

Site	LMWLP site number	Waste type(s)	2019 WDI Return (tonnes)	Maximum capacity (tonnes)
Kirkby on Bain Quarry	171	CD and E	14,248	20,000
Copper Hill Quarry	88	CD and E (Haz)	5,766	15,000
Brauncewell Quarry Transfer Station	14	CD and E	0	11,074
Brauncewell Quarry Recycling (NB Throughput exceeds maximum cited capacity)	14	CD and E	35,639	34,000
Kettleby Quarry	170	CD and E	0	15,000
South Witham Quarry (East)	181	CD and E	0	20,000
Park Farm Quarry, Tattershall	36	CD and E	0	30,000
Swinderby Quarry	174	CD and E	5,497	30,000
Creeton Quarry	184	CD and E	3,703	25,000
South Thoresby Quarry	173	CD and E	0	30,000
Castle Quarry	189	CD and E	0	0
Baston No1 Quarry	191	CD and E (Haz)	0	40,000
Great Ponton (Station) Quarry	193	CD and E	0	50,000
Dunston Quarry	63	CD and E	33,902	75,000
Harmston Quarry Inert Treatment Facility	13	CD and E	108,130	180,000
Longwood Quarry	205	CD and E	2,528	10,000

Site	LMWLP site number	Waste type(s)	2019 WDI Return (tonnes)	Maximum capacity (tonnes)
Whisby Quarry	3a	CD and E	0	75,000
Highfield Quarry	109	CD and E (Haz)	22,996	75,000
Subtotal for active Quarry Sites	Not Applicable	Not Applicable	232,409	735,074
Lindum Group Ltd	71	Haz, CD and E	0	75,000
Harlaxton Engineering Services	192	CD and E	136	50,000
Sharpes Haulage	214	CD and E	299	749
Stainby Reclamation	219	CD and E	1,440	20,000
Midland Quarry Products Baston Asphalt Plant	225	C and D	500	11,498
Hobleys Yard	183	CD and E	2,625	75,000
East Coast Aggregates	231	C and D	0	12,000
Caenby Hall Waste Transfer Station	47	CD and E	7,327	14,840
Mansgate Quarry	172	CD and E	0	50,000
Subtotal for stand-alone recycling facilities	Not Applicable	Not Applicable	12,327	309,087
GBM Waste Management (Manby Airfield)	53	CD and E	0	21,236
Andrew Riddel Skip Hire Ltd	19	H, C and I	0	11,222
Westville Waste Recycling Centre	118	H, C and I, C and D	19,261 (228 C and D)	5,600
Bourne Waste Transfer Station	31a	H, C and I, C and D	12,611 (1,548 C and D)	19,051
MG Skip Hire, Four Acre Farm	75	H, C and I, C and D	972 (561 C and D)	25,000
Orange Skip Co.	148	H, C and I, C and D	2,160 (20 C and D)	75,000

Site	LMWLP site number	Waste type(s)	2019 WDI Return (tonnes)	Maximum capacity (tonnes)
The Recycling Centre, West Deeping	81	H, C and I, C and D	41,737 (5,293 C and D)	51,893
Materials Recycling Facility, Caythorpe	80	H, C and I, C and D	140,825 (23,571 C and D)	200,000
Bourne Skip Hire and Recycling (BSH)	85	H, C and I, C and D	35,943 (11,768 C and D)	34,076
The Recycling Centre, Hemmingby Lane, Horncastle	90	H, C and I, C and D	15,642 (5,782 C and D)	63,234
Subtotal for other sites known to recycle some aggregates	Not Applicable	Not Applicable	(48,771 C and D)	506,312
Clarkeson Recycling	Not Applicable	H, C and I, CD and E	Not Applicable	55,000
FCC Slippery Gowt Recycling	Not Applicable	CD and E	Not Applicable	75,000
Subtotal for new permissions in 2020	Not Applicable	Not Applicable	0	130,000
Total	Not Applicable	Not Applicable	293,507	1,680,473

Source: Lincolnshire Local Aggregate Assessment, September 2021

A1.2 Waste

A1.2.1 Introduction

This section draws on data and information supplied by the Minerals and Waste Local Plan Review, 2021, produced by Lincolnshire County Council.

A1.2.2 Waste Type Definitions

A1.2.2.1 Non-Hazardous Waste

Non-Hazardous Waste comprises two different types of waste; 'organic' (compostable materials) and 'non-organic' (recyclables). This waste is collected from the following two sources:

- Local Authority Collected Waste (LACW) – this is waste collected from households and a small number of commercial properties. This can include public gardens and bins.
- Commercial and Industrial Waste – this is waste collected from shops, industrial and business premises. This includes a wide range of waste including food waste and packaging.

A1.2.2.2 Construction, Demolition and Excavation Waste (CD and E)

Construction waste is essentially controlled waste arising from construction and demolition. The majority of this waste is bulky and inert. There is potential for using recycled construction and demolition waste as a substitute for primary aggregates.

The construction industry is a major source of waste in England, using the highest tonnage of solid material resources in any sector nationally. The construction and demolition (C and D) sector generates more waste in England than any other sector. Examples of C and D waste include waste building and dredging materials, tree stumps and rubble resulting from construction, remodelling, repair, and demolition operations on houses, commercial buildings and other structures, and pavements. It is also the largest generator of hazardous waste of all sectors, and may contain lead, asbestos, or other hazardous materials.

Excavation waste can typically consist of soils and stones which are unable to be used beneficially. They can arise from projects such as tunnelling and the removal of soils in preparation for mineral extraction.

A1.2.2.3 Hazardous Waste

Hazardous waste is essentially waste that contains hazardous properties that may render it harmful to human health or the Environment. The European Commission has issued a Directive on the controlled management of such waste (91/689/EEC) and hazardous waste is defined on the basis of a list, the European Waste Catalogue, drawn up under that Directive. This list includes waste that is explosive, oxidising, highly flammable, toxic, carcinogenic, corrosive, mutagenic or ecotoxic.

A1.2.2.4 Radioactive Waste

Radioactive waste can be divided into two categories:

- Nuclear – waste produced within the nuclear power industry.
- Non-nuclear – waste produced within medical facilities and educational establishments

A1.2.2.5 Wastewater (sewage)

This is waste that is processed in Water Recycling Centres via the foul sewer network. Produced by domestic residences, commercial properties, industry and agricultural activities.

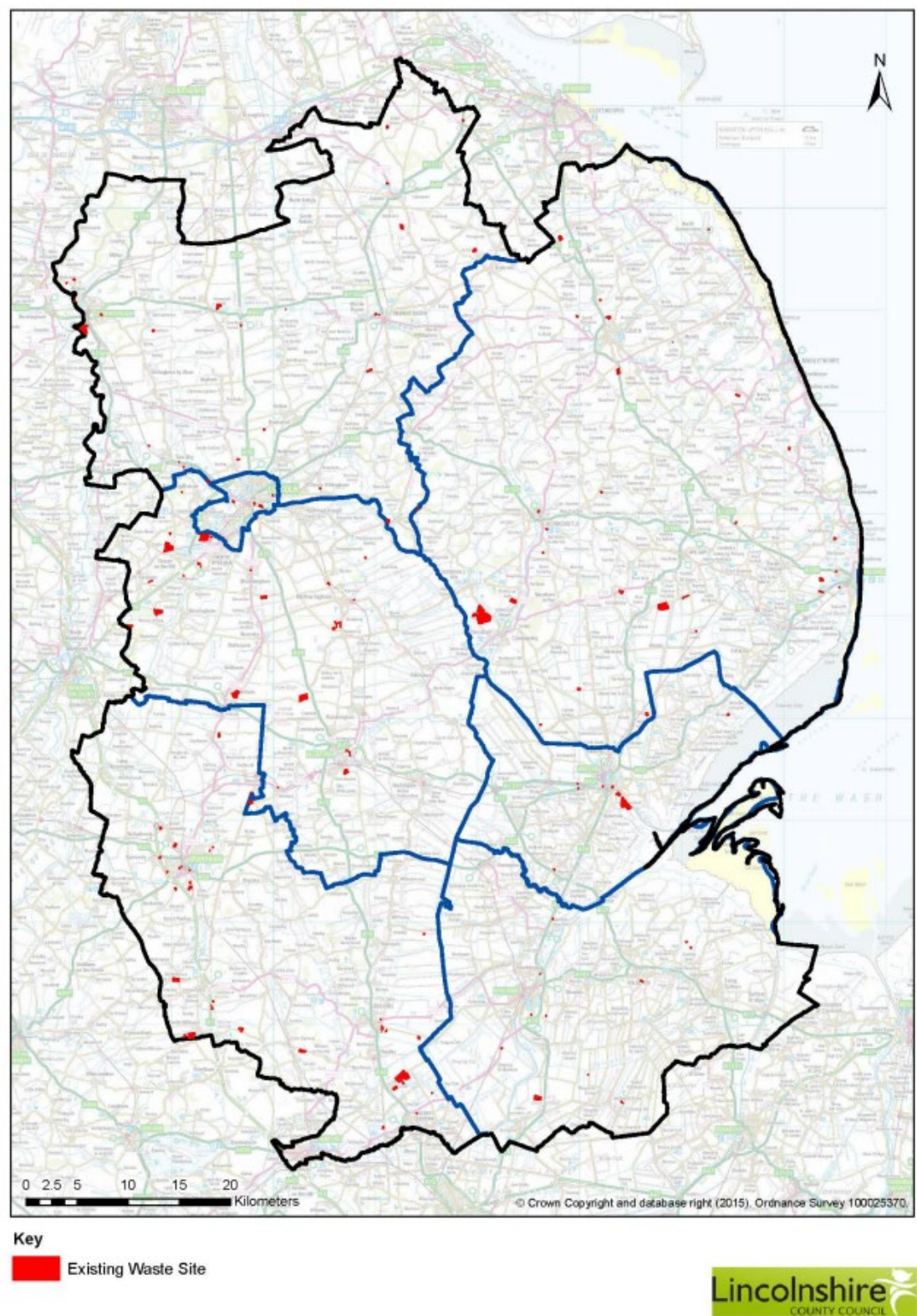
A1.2.2.6 Agricultural Waste

Agricultural waste is waste created from farming practices. This includes waste from horticulture, dairy farming, livestock breeding and keeping and grazing land amongst other farming activities. The creation of manure or slurry is not included in agricultural waste figures where it is utilised as fertilizer.

A1.2.3 Existing Waste Facilities

The below map shows existing waste sites, or waste management facilities, in the County. The map indicates that despite a broad geographic spread of facilities, many sites are located and concentrated in those areas with the largest centres of population.

Figure 6: All Existing Facilities within the Plan Area (LCC, 2016)



Source: LMWLP Sustainability Appraisal Scoping Report, 2016

Table 15: Net changes in waste management capacity and the effect on the waste management capacity gap projections

Function	Gap 2015	Net capacity change 2017	Net capacity 2018	Net capacity 2019	Gap 2020	Gap 2025	Gap 2031
Mixed waste recycling	114,483	0	196,500	26,446*	34,850	66,228	99,450
Specialised recycling	-347,034	149*	19,820	47,400	-421,546	-411,750	-410,694
Composting	-366,755	0	0	0	-357,146	-352,910	-348,124
Treatment plant	-125,452	34,300	98,000	132,000	-565,915	-560,061	-574,795
Energy recovery	-5226	0	0	0	93,564	101,604	110,811
Specialised incineration	36,220	0	0	0	36,177	36,195	36,214
Aggregates recycling	-65,995	0	57,000	96,000	-205,514	-139,241	-68,644
Non-hazardous landfill	-105,321	0	0	0	-70,290	-100,346	-132,100
Inert landfill	-97,654	0	0	0	25,792	34,178	42,863
Hazardous landfill	9,496	0	0	0	9,631	9,769	9,912

Note: minus indicates a surplus of capacity and red with a * indicates a loss of capacity during the monitoring period.

Source: Review of the Lincolnshire Minerals and Waste Local Plan, February 2021

A1.2.4 Need for Waste Management Facilities and the Capacity Gap

The 2021 Waste Needs Assessment contains analysis of existing waste facilities that outlines the future needs for waste developments within Lincolnshire. The capacity gaps are provided for both capacity and void gaps. These are outlined below.

Table 16: Lincolnshire Capacity Assessment and Milestone Built Capacity Gap Analysis at Forecast Milestone Years (tonnes)

Capacity Type	2025	2030	2035	2040	2045
Recycling and Composting	+845,000	+777,000	+708,000	+658,000	+646,00
Energy Recovery	+119,500	+149,000	+173,000	+182,500	+180,000
Aggregate Recycling	+427,500	+382,000	+337,000	+292,000	+247,000
Hazardous Waste	+15,500	+15,500	+15,500	+15,500	+15,500
Grand Total Surplus	+1,407M	+1.32M	+1.23M	+1.15M	+1.09M

Source: Lincolnshire Waste Needs Assessment, 2021

Table 17: Lincolnshire Void Assessment and Milestone Capacity Gap Analysis at Forecast Milestone Years (Mm3)

Capacity Type	2025	2030	2035	2040	2045
Non-inert Landfill	+7.08	+5.59	+4.46	+3.69	+3.18
Inert Deposit to Land	+1.67	+0.82	-0.023	-0.97	-1.7
Grand Total Surplus	+8.75	+6.41	+4.437	+2.82	+1.48

Source: Lincolnshire Waste Needs Assessment, 2021

A1.3 Cultural Heritage

A1.3.1 Introduction

The historic environment should be effectively protected and valued for its own sake, as an irreplaceable record which contributes to our understanding of both the present and the past. Cultural heritage adds to the quality of life, by enhancing the local scene and sustaining a sense of local distinctiveness, which is an important aspect of the character and appearance of towns, villages and countryside and should not be compromised by the insensitive location of development. It also has an importance for leisure and recreation. The location and scale of new

mineral management facilities may have an adverse impact on nearby features of a cultural heritage value. It is important that new facilities respond to this in determining the location of new proposed site allocations or incorporate necessary mitigation to offset any negative externalities.

The Lincolnshire Historic Environment Record is a digital database and currently records over 57,000 features including: archaeological sites and finds, historic buildings and structures, legally designated and protected sites, historic parks, garden and ancient woodlands and battlefields and legends. This database is also supported by an extensive collection of physical materials such as: historical maps and aerial photos, reports on archaeological investigations and books and journals.

A1.3.2 Listed Buildings

All buildings built before 1700 which survive in anything like their original condition are listed, as are most of those built between 1700 and 1840. The criteria become tighter with time, so that post-1945 buildings must be exceptionally important to be listed. A building normally must be over 30 years old to be eligible for listing. New mineral management facilities and sites should not negatively impact on the setting of listed buildings aesthetically or through operational noise or nuisance.

Table 18: Listed Buildings in Lincolnshire

Administrative Area	Grade I Listed Buildings	Grade II* Listed Buildings	Grade II Listed Buildings	Total
Lincolnshire	384	547	6,098	7,029

Source: Historic England (2022)

The total number of listed buildings or groups of buildings in England is over 370,000 and in Lincolnshire there are around 7,000. Grade I buildings are of exceptional interest, sometimes considered to be internationally important. Only 5.5% of all listed buildings in Lincolnshire are Grade I. 7.8% have been designated as Grade II* buildings which are particularly important buildings of more than special interest and the rest are Grade II listed which means they are nationally important and of special interest.

A1.3.3 Archaeology, Recorded Sites and Finds in Lincolnshire

As with rest of the UK, it is true to say that most archaeological sites and deposits in Lincolnshire remain buried, hidden and thus preserved. However, the known archaeological resource in the county is very varied and highly significant. There are over 3,030 records of archaeological sites and finds, recorded on the Lincolnshire Historic Environment Record (LHER) for the county. However, it should also be remembered that the LHER represent only the known deposits with many new sites being identified each year. Archaeological sites (and their setting) constitute a finite, non-renewable resource, vulnerable to damage.

A1.3.4 Scheduled Monuments

Scheduled Monuments (SMs) are sites of national importance and protected by the Ancient Monuments and Archaeological Areas Act 1979. SMs are designated to preserve the monument for the future and protect it from damage, destruction or any unnecessary interference. Mineral management facilities and new sites will have to respect the location of any SMs in light of perceived interference. There are 484 SMs in Lincolnshire, ranging from Neolithic long barrows to castles.

A1.3.5 Conservation Areas

Lincolnshire currently has 184 designated Conservation Areas. The Conservation Areas are defined as historical town centres and buildings having 'special architectural or historical interest, the character of which is desirable to preserve or enhance' which are protected under the Listed Buildings and Conservations Areas Act (1990). The objective of the Conservation Area designation is to ensure that the character of the defined area is preserved from developments which do not preserve or enhance its character. Mineral activities should not negatively affect the quality and condition of conservation areas.

A1.3.6 Historic Parks and Gardens

These are designated by English Heritage and defined as "a park or garden of special historic interest". They are graded I (highest quality), II* or II. There are currently 38 historic parks and gardens in Lincolnshire. Of the 38, five have been graded II* and three, have been awarded grade I status which is the highest quality.

A1.3.7 Historic Battlefields

There is one registered battle site within Lincolnshire. It is known as the Battle of Winceby which took place in 1643 between the Royalists and Parliamentarians. The battlefield site is situated within and adjacent to a number of designations: Area of Great Landscape Value and The Lincolnshire Wolds Area of Outstanding Natural Beauty respectively.

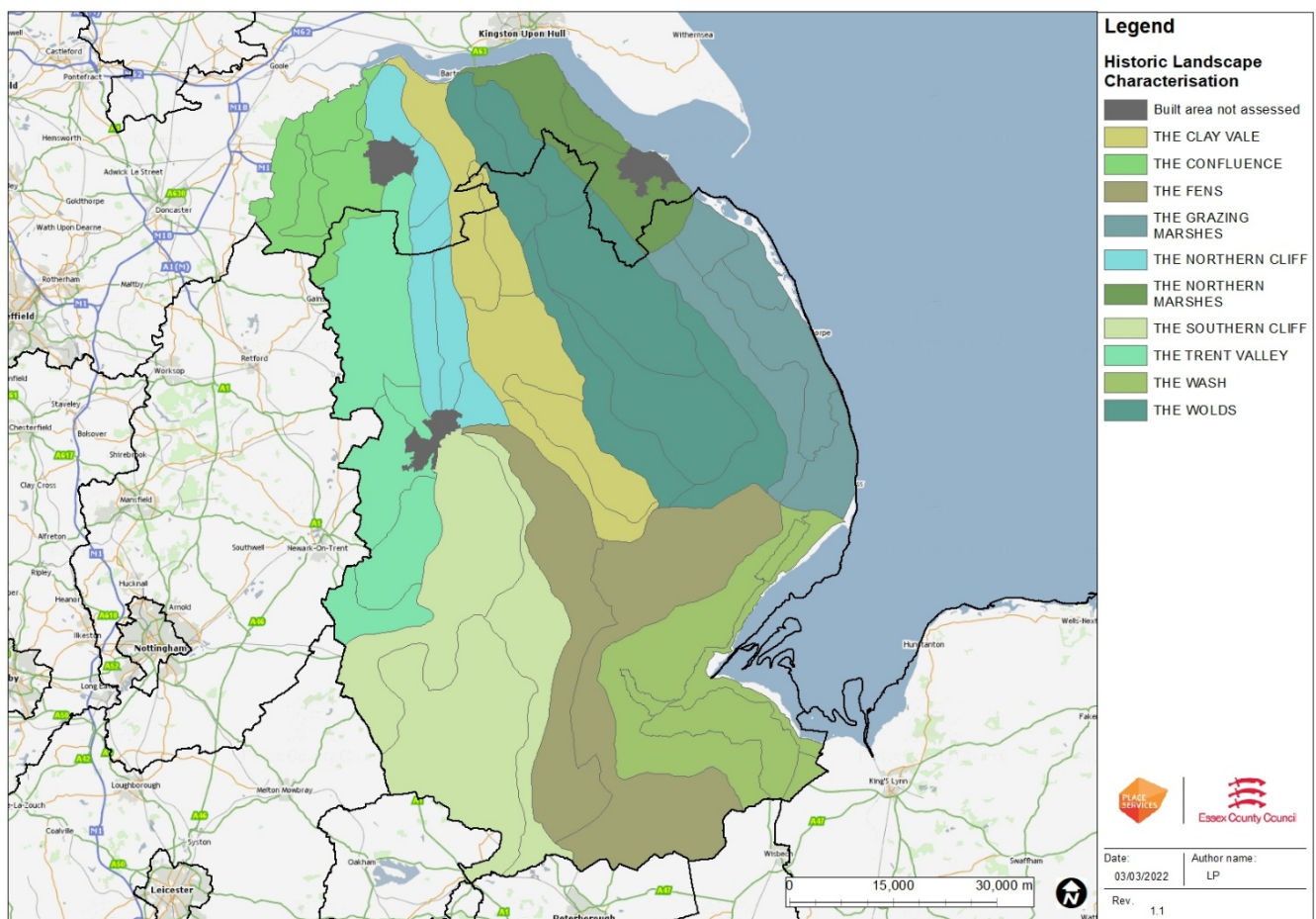
A1.3.8 Historic Landscape Character

Lincolnshire County Council were supported by Historic England, Lincolnshire Wolds Countryside Service and all councils across Greater Lincolnshire in the production of the Historic Landscape Characterisation project. This document divides the Greater Lincolnshire area into defined character areas and zones. Character areas represent geographic regions that share landscapes of similar historical development, both by natural and human activity.

There are a total of ten main areas, each with a number of character zones. These areas include the Clay Vale, the Confluence, the Fens, the Northern Cliff, the Northern Marshes, the Southern Cliff, the Trent Valley, the Wash and the Wolds. Included below is a high level description of the landscape of the area and the impacts of the main drivers of change for Lincolnshire, these being: Agriculture (changes resulting from alterations to farming practices relating to crops, livestock, fields or buildings), Climate Change (changes resulting from alterations to the climate or from

attempts to mitigate such changes), Industry (changes resulting from the creation of new industries, the decline of old industries or the by-products of existing industries), Settlement (changes resulting from the expansion or contraction of settlements or to the infrastructure needed for their support), and Tourism and Recreation (changes resulting from pressure on recreational sites and associated infrastructure with particular reference to holidaymakers). The geographical spread of these areas can be found in the figure below.

Figure 7: The Historic Character Areas of the County of Lincolnshire



Source: The Historic Landscape Characterisation Project for Lincolnshire, September 2011

A1.3.8.1 The Confluence

This character area lies at the confluence of the Trent and the Ouse, in the extreme north-west of the historic county of Lincolnshire. To the south the area is bounded by the River Idle and, to the west, by the River Don. The area thus defined is largely flat with wide, uninterrupted views. The central part of the area has a higher topography than the rest, being a series of low hills. These hills form the Isle of Axholme and are home to the majority of the population of the area. Therefore, the area divides neatly into two types of landscape, one on the higher ground of the islands, the other on the flat drained land surrounding them.

The key 'drivers of change' for this character area are:

- Agriculture
 - Encroachment of horse-pasture onto the surviving open fields
 - Consolidation of historic strips and fields to form larger units
 - New crops for bio-fuels
 - New climate-resistant crop strains
- Climate Change
 - Flood risk management may require new infrastructure, such as pumping stations, flood banks or storage areas
 - Wind energy facilities and infrastructure either on flat lowland plains or set on the high ground of the island
 - Solar panel installation on built features
- Industry
 - New industrial facilities along M180 corridor
 - Expansion of existing sand and gravel quarrying capacity
 - Growth of industrial areas along the River Trent
- Settlement
 - Pressure for further expansion due to population increase
 - Historic settlements may merge if expansion is not adequately regulated
- Tourism and Recreation
 - The area is currently under-used as a tourist destination
 - New nature reserves may result from quarrying
 - Expansion of residential areas may require new recreational facilities

A1.3.8.2 The Northern Cliff

The landscape of this area has a strong north-south grain, influenced primarily by the presence of the Cliff, but also by the Roman Ermine Street that runs along the top of it. A map of parish boundaries in this Character Area shows that they all have the Roman road as an east or west boundary, and are laid out perpendicular to it.

The key 'drivers of change' for this character area are:

- Agriculture
 - Dereliction of historic farm buildings
 - Construction of modern agricultural facilities
- Climate Change
 - Changes to crop regime due to changing weather patterns
 - New bio-fuel crops and associated infrastructure

- Potential for new wind energy facilities of higher ground
- Industry
 - Change in use or outright destruction of historic military facilities
 - Possible improvements to the A15
 - Future changes to Scunthorpe steelworks
- Settlement
 - Expansion of commuter villages around Lincoln
 - Lincoln and surrounding area designated as Growth Point Area
 - Further expansion of Scunthorpe into the northern part of the character area

A1.3.8.3 The Northern Marshes

The landscape of the Northern Marshes Character Area is heavily influenced by the many industrial features along the coast. To the north of the area, along the inland bank of the River Humber, elements of the industrial past of this area has been preserved in a network of lakes which are the remnants of a once-thriving brick and tile industry at Barton-upon-Humber. Some of these lakes are now a valuable habitat for wildlife, while others have been remodelled as recreational facilities for water-sports.

The key 'drivers of change' for this character area are:

- Agriculture
 - Consolidation of planned enclosure landscapes to accommodate new techniques and crops
 - Introduction of new crop types, such as tall-growing biomass fuels
 - Transfer of arable land to pasture
 - Destruction of historic earthworks, such as ridge and furrow, through ploughing
- Climate Change
 - New renewable energy production and infrastructure facilities
 - Flood alleviation schemes
 - Alterations to built fabric – e.g. solar panels, whitewashing, air-conditioning
- Industry
 - New port facilities and associated infrastructure
 - Expansion of existing industrial capacity
 - Dereliction of existing industrial facilities
- Settlement
 - Expansion of residential areas around existing villages
 - Development pressure in the greater Grimsby area

- Tourism and Recreation
 - Expansion of tourist facilities and accommodation capacity to respond to greater future demand

A1.3.8.4 The Wolds

The Wolds is a plateau of high ground surrounded by 'typical' Lincolnshire lowlands on all sides, the Central Vale to the east, the Fens to the south, and the Coastal Marsh to the east. The area has a rolling, undulating form, strongly influenced by the many dry riverbeds that are found there. While the crests of the dry valleys provide views across long distances, the valley floors are very enclosed with restricted views.

The key 'drivers of change' for this character area are:

- Agriculture
 - Further consolidation of farm holdings leading to abandonment of farm buildings and field boundary loss
 - Transfer of land from arable to pasture – food prices, legislation Agri-environment
 - Possible destruction by ploughing of non-scheduled historic earthworks, e.g. ridge and furrow
- Climate Change
 - Development of renewable power generation facilities within the area or visible from it
 - Associated power transmission facilities, such as pylons or sub-stations
 - Potential flood risk from increased upland rainfall flowing downhill to lower ground
 - Introduction of biofuel crops, such as fast-growing trees or other tall vegetation
- Industry
 - Increase of industrial capacity from current low levels, especially near larger settlements
 - Industrial re-use of former farm buildings – workshops, small units
 - New utilities and infrastructure to accommodate population growth
- Settlement
 - New planned residential developments, especially around major settlements
 - Infill of vacant village plots or gardens
 - New isolated housing away from historic nucleated villages
- Tourism and Recreation
 - Increased resident population will require new recreational amenities
 - Increased domestic visitor numbers may result from foreign travel becoming more expensive

- New transport infrastructure to accommodate visitors to and through the area
- Increased light pollution from new developments may impact locally-valued dark skies

A1.3.8.5 The Clay Vale

The Clay Vale is an area of low-lying ground between the Lincolnshire Wolds, to the east, and the gentle westward slope leading up to the Northern Cliff. To the south, it is bounded by the fens. The character of the area is strongly defined by the rivers and streams that drain through it from neighbouring areas. The area is divided roughly in half by a watershed between the River Ancholme to the north and the Barlings Eau to the south. Numerous small streams run from the neighbouring high ground along east-west paths to these major watercourses. The Ancholme drains into the River Humber to the north and thence into the North Sea. The Barlings Eau drains into the River Witham, which forms the southern boundary of the character area. The presence of these two major water courses has led to an accumulation of heavy clay soils over the course of time, which has in turn strongly influenced the types of farming and husbandry that can be practiced in the area. In certain places, notably around Market Rasen, the clay has also been overlain with wind-blown sand deposits.

The key 'drivers of change' for this character area are:

- Agriculture
 - Expansion of modern farm buildings around historic farmsteads
 - Dereliction of historic farm buildings
 - Subsidies for transferring land from arable to pasture
- Climate Change
 - Expansion of existing power facilities in the Ancholme Valley
 - Creation of new renewable energy facilities and infrastructure (e.g. wind power)
 - New crops for bio-fuel, or biomass energy
 - New food crops to cope with altered climate patterns
 - Substantial flood risk to low-lying farmland
- Industry
 - Expansion of industrial facilities near larger settlements
- Settlement
 - New housing around existing settlements
 - Infill of vacant plots and new builds in residential gardens
- Tourism and Recreation
 - Increased footfall at heritage sites along the Witham
 - Facilities and infrastructure for boating and canoeing along the Ancholme

A1.3.8.6 The Trent Valley

This area is primarily rural in character. The eastern edge is formed by the scarps of the Northern and Southern Cliff. The western edge of the area is formed by the River Trent in the north, and by the county boundary in the south. The entire area is characterised by nucleated settlements and isolated farmsteads. The nucleated settlements to the north of Lincoln are arranged in two distinct north-south lines: aligned along the eastern Trent bank and, to the east, along the line of the shallow ridge which leads up to the Northern Cliff scarp. The character of the nucleated settlements to the south of Lincoln fall into two distinct categories: those to the immediate west and south of Lincoln are much more scattered, of smaller size and less frequent in nature than those to the north of Lincoln; those in the far south of the zone are larger in size and more frequent forming a crescent following the edge of the low lying ground through which the River Witham flows. Isolated farmsteads are found throughout the area, with equal distribution, but, due to the lower frequency of nucleated villages, appear more dominant in the central part of the area.

The key 'drivers of change' for this character area are:

- Agriculture
 - Further field consolidation
 - Changes to the crop regime, mainly for bio-fuels
 - Closure and dereliction of farms
- Climate Change
 - Changes to the crop regime, mainly for bio-fuels
 - Construction of windfarms or micro-hydro generation
 - Loss of tree species
- Industry
 - Potential loss of existing power stations in Nottinghamshire as new sources come online
 - Creation of new aggregate extraction sites or expansion of existing ones
- Settlement
 - Modern development within and around settlement edges
 - New housing development around Gainsborough

A1.3.8.7 The Southern Cliff

The northern part of the area is situated on the same geological formation as the Northern Cliff; a north-south aligned west-facing limestone scarp, with a gently eastward sloping aspect. To the south, the upland character broadens out to join with the Nottinghamshire and Leicestershire Wolds. The area to the east of the limestone cliff sits above colluvial clays at the edge of the fens.

The key 'drivers of change' for this character area are:

- Agriculture
 - Consolidation of historic fields through loss of boundaries
 - Neglect of surviving ancient hedgerows

- Change of use from arable farming to pasture
- Climate Change
 - Loss of traditional woodland species
 - New methods of energy production, especially micro-generation facilities on historic buildings
 - Infrastructure for energy transmission from more northerly areas
 - Introduction of new crops if current varieties prove unsuitable to warmer, drier weather
- Industry
 - Expansion of industrial facilities around major settlements
 - Change of use of old farm buildings from agriculture to light industry
 - Possible closure of RAF bases and dereliction of disused airfields
- Settlement
 - Further expansion pressure throughout the area from population
 - Growth of existing population requiring affordable housing
 - Dereliction of isolated farm buildings and agricultural units
- Tourism and Recreation
 - Increased visitor numbers to stately homes and parks throughout the area
 - Traffic through the area on major roads, e.g. A1, A15

A1.3.8.8 The Grazing Marshes

The landscape of this area is predominantly flat with generally wide, open views across long distances. In the south of the area, especially around Burgh-le-Marsh, these views are compromised somewhat by the 'Bocage' effect of hedged roads and paths, which tend to restrict visibility from the main lines of communication. There are, however, fewer large blocks of woodland in the area than are found in the county as a whole, and woodland as a proportion of the landscape is less well represented.

The key 'drivers of change' for this character area are:

- Agriculture
 - Further consolidation of field boundaries
 - Fluctuating food prices causing changes between arable and pastoral uses
 - Bio-energy crops with different appearance
- Climate Change
 - New energy production infrastructure – wind turbines, transformers, power lines
 - Alterations to housing fabric – whitewash, air-conditioning, building materials, solar panels
 - Changes to sea level – flood risk, construction of defences, managed retreat

- Settlement
 - Expansion of larger settlements – Burgh-le-Marsh, Louth, Skegness
 - Infill of straggling linear villages and hamlets
 - Decline of isolated farms – Disuse of ancillary buildings, abandonment
- Tourism and Recreation
 - Expansion of resort facilities along recreational coastline
 - Associated expansion of caravan parks
 - Enhancement of roads and public transport for increased numbers of visitors

A1.3.8.9 The Fens

The Lincolnshire Fens represents a large proportion of the southern half of the county. The area is well defined to the north and west, as in these directions there is a clear edge, defined by higher ground. To the south, the boundary is partially formed by the River Welland, but also meanders across the countryside for great lengths, presumably following the course of long-forgotten rivers, until it joins with the River Nene. The eastern edge is defined by the Townlands, a silt bank upon which many of the historic Wash settlements are situated.

The key 'drivers of change' for this character area are:

- Agriculture
 - Introduction of tall-growing bio-mass crops
 - Consolidation of fields leading to loss of historic patterns
 - Change of use from arable to pasture
- Climate Change
 - Flood alleviation schemes – storage pools, pumping facilities, dykes
 - New crops capable of dealing with drought
- Industry
 - Construction of new energy production facilities – especially wind power
 - Creation of associated energy infrastructure, such as pylons and substations
- Settlement
 - Dereliction of historic isolated farm buildings
 - Infill developments in straggling linear villages
- Tourism and Recreation
 - Few existing tourist destinations in the area
 - Possible expansion of roads (e.g. A52) to accommodate higher levels of through traffic between the Midlands and the coast

A1.3.8.10 The Wash

The Wash is a large estuarine complex on the east coast of Lincolnshire. It is fed by the Rivers

Witham, Welland, Steeping, Great Ouse and Nene, which are themselves fed by numerous drains and streams across the East Midlands. The western edge of the character area is dominated by a silt ridge which stands about 4m above sea level. The land between this ridge and the Wash Estuary itself is typically at or below sea level, with earthen banks at regular intervals parallel to the coast marking the extent of former coastlines.

The key 'drivers of change' for this character area are:

- Agriculture
 - Introduction of tall-growing bio-mass crops
 - Consolidation of fields leading to further loss of historic patterns around settlements
 - Creation of large 'prairie' fields on drained marsh
- Climate Change
 - Flood alleviation schemes – storage pools, pumping facilities, dykes
 - Enhancement of existing sea banks
 - Introduction of new crops capable of dealing with drought
- Industry
 - Construction of new energy production facilities – especially wind power
 - Creation of associated energy infrastructure, such as pylons and substations
- Settlement
 - Regeneration of historic settlements - Boston, Spalding
 - Expansion of residential areas around larger settlements
 - Ribbon development along main connecting roads
 - Infill developments in straggling linear villages
- Tourism and Recreation
 - Wider appreciation of biodiversity leading to increase in Nature Tourism
 - Local economic regeneration through promotion of tourist destinations

A1.4 Landscape

A1.4.1 Introduction

Since the end of the last Ice Age, natural processes and successive human use have shaped the Lincolnshire landscape into its present form. The result is a combination of physical components such as landform, visible spatial components and non-visible spatial components which can incorporate sound and cultural associations. It is the combination of these aspects that determines an area's distinctive character, which can then be classified into wider character areas, or remain as distinct unique areas. Within the Lincolnshire landscape there are many areas of special interest which have been designated and protected from inappropriate development. The scale and location

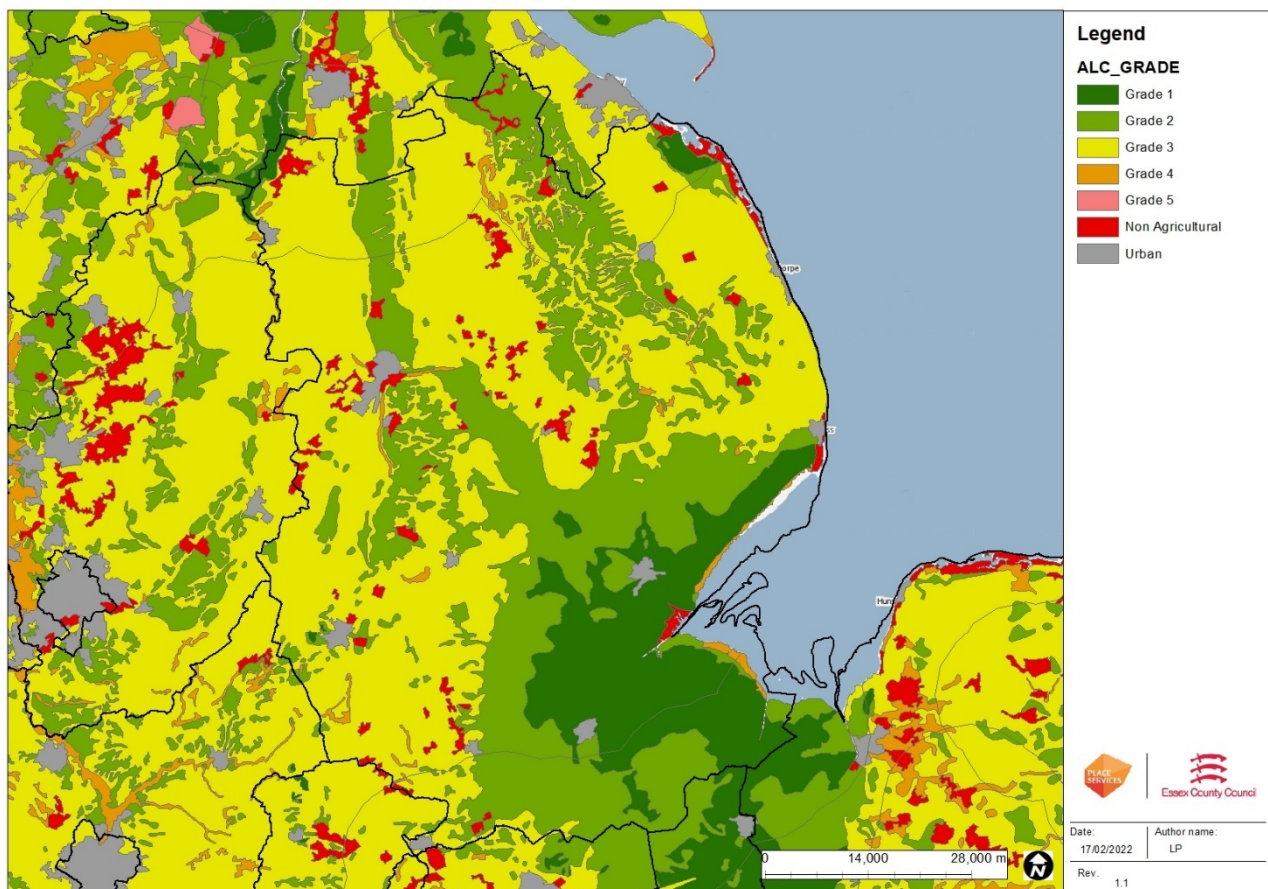
of mineral and waste sites and activities will have to adhere to such landscape interest, being either unsuitable for development in certain areas, requiring mitigation to offset any negative impacts, or proven that the benefits of facilities at certain locations outweigh the loss of landscape amenity.

A1.4.2 Agricultural Land

Soil types within Lincolnshire have also helped to shape the landscape, wildlife and economy of the County. New mineral and waste related activities and sites should not result in a loss of the County's most fertile land through its location or any potential pollution. Agricultural Land is classified by quality in a grading system with Grade 1 being the highest quality and Grade 5 the lowest. Agricultural Land Classification provides practitioners with a method for assessing the quality of farmland to enable informed choices.

There are significant areas of Grade 1 and 2 agricultural land within Lincolnshire, primarily within the south-east of the County. Such land would not be ideal for mineral sites and associated facilities and activities. Most agricultural land within Lincolnshire can be broadly classified as Grade 3 in the north and Grade 2 and 3 to the south.

Figure 8: Lincolnshire Provisional Agricultural Land Classification



Source: DEFRA, 2019

There are several pockets of land classified as urban area of note: Lincoln, Boston, Spalding,

Grantham, Louth and Gainsborough. Land classified as non-agricultural can be found within six of the districts, with South Holland being the only district to contain none. Low grade, undesignated non-agricultural and underused agricultural land would be preferable for the location of new mineral sites and strategic mineral facilities.

A1.4.3 National Character Areas

As a result of Natural England's responsibilities outlined in the Natural Environment White Paper, Biodiversity 2020 and the European Landscape convention, the profiles of England's 159 National Character Area (NCAs) were revised in 2014. Each area is defined by the following factors; landscape, biodiversity, geodiversity, history and cultural and economic activity. The boundaries of these areas follow natural lines in the landscape, rather than administrative boundaries. Lincolnshire is covered by nine of these areas, these include: No.42 – Lincolnshire Coast and Marshes, No.43 – Lincolnshire Wolds, No. 44 – Central Lincolnshire Vale, No.45 – Northern Lincolnshire Edge, No.46 – The Fens, No.47 – Southern Lincolnshire Edge, No. 48 - Trent and Belvoir Vale and No. 75 – Kesteven Uplands. Each sites key characteristics can be found below.

A1.4.3.1 NCA No. 42 - Lincolnshire Coast and Marshes Key Characteristics

- Flat coastal plain to the east, with dramatic skylines across great distances, rising gradually in the west to more undulating land at the foot of the adjacent Lincolnshire Wolds.
- Cretaceous Chalk underlies most of the area with later Quaternary sand, gravel and clay deposits laid down following glacial activity. Slowly permeable, seasonally waterlogged fine and fertile loamy soils.
- Strong marine influences of accretion and erosion shape the coastline with extensive wide, shallow beaches, vast areas of mudflats, major dune systems, continuous lengths of artificial sea defences, and numerous sandy beaches and nature reserves.
- There are coastal mudflats and a dune complex in Cleethorpes. At Gibraltar Point an ancient calcareous dune system exists and coastal saline lagoons, reedbeds and mudflats are important for their biodiversity.
- Clear distinction between the higher ground of the Middle Marsh, where settlement is nucleated, and dispersed settlement relating to drainage in the Outmarsh.
- Inland is a predominantly open, medium-scale agricultural landscape with mixed arable farmland in the Middle Marsh to the west. The Outmarsh, and smaller farm units with traditional pastures and occasional vegetable crops on the Outmarsh - nearer to the coast, also has medium-scale arable agriculture with pockets of traditional pasture.
- Woodland and hedge cover is sparse but increases westwards towards the foot of the Lincolnshire Wolds with significant ancient woodland on the Middle Marsh. More minimal tree and hedgerow cover is found on the lower-lying, open Outmarsh.
- A complex series of rivers and small streams drains eastwards towards the sea.
- Many deserted medieval villages surviving under grass are found in this NCA.
- A dispersed settlement pattern is characteristic throughout much of the area with a concentration of larger settlement along the coast including resort towns.
- Rural areas have a mix of dispersed and nucleated settlement; the latter concentrated in the

Middle Marsh. Strongly characterised by the use of brick and pantile.

- Industrial areas are located in parts of the coastal strip, and there is some discordant development in certain areas. Offshore and onshore wind turbines are present and distinctive on the skyline.
- Developed seaside resorts attract tourists to the coast. The undeveloped wild coast with inspiring long views, high levels of tranquillity and numerous nature reserves.

A1.4.3.2 NCA No. 43 - Lincolnshire Wolds Key Characteristics

- Rolling chalk hills and a predominantly agricultural landscape with a pronounced scarp edge to the north and west affording panoramic views.
- A diverse geology of chalk, sandy limestone, ironstone and clay gives rise to a combination of elevated plateau and deep-sided dales. Soils are generally shallow and lime rich with rich loamy soils associated with valley bottoms.
- Predominantly arable, but some pasture fields with rectilinear patterns and hedgerows. Farmland habitats are found together with farmland birds.
- Woodland is limited particularly to the north but there are occasional shelterbelts, hedgerow trees and scattered beech clumps. Important alder carr woodland is associated with some of the valleys in the south-west.
- Isolated chalk and neutral grasslands typically on the steepest uncultivated slopes.
- Valuable semi-natural acidic mires are found in the valley marshes of the Lymn and Bain. The broader south-west valleys of the rivers Lymn and Bain have tree-lined watercourses. The mixed farmed landscape of irregular medium-sized fields in the south-west valleys provides contrasts with the arable-dominated plateau.
- Broad grass verges up to 20 m on some roads and historical tracks.
- Chalk springs and flushes and chalk stream habitats supporting submerged plants, a rich invertebrate fauna and flagship species.
- A historically and archaeologically rich landscape.
- A sparse settlement pattern of small market towns and small nucleated villages scattered farmsteads. The settlements are predominantly linked by west–east A roads linking to coastal areas.
- A diverse geology gives rise to a variety of building materials.
- Development of wartime airfields.

A1.4.3.3 NCA No. 44 - Central Lincolnshire Vale Key Characteristics

- A predominantly broad, low-lying, very gently undulating arable vale with a bedrock and with the Wolds scarp providing an often prominent boundary to the east.
- Seasonally waterlogged loamy clay soils, grading to deeper calcareous loams towards the Wolds and contrasting with deep acidic sandy soils on the Fen Edge Gravels and the wind-blown Coversands.
- A landscape crossed by many streams flowing from the Wolds towards the heavily modified courses of the main rivers.

- Woodland cover is variable with little on the central and northern clay soils.
- Land used mostly as arable farmland with pasture on the heavier clays and around villages.
- A regular pattern of medium to large-sized arable fields with hawthorn-dominant hedgerows enclosing most fields and with few hedgerow trees. Significant variation found on the Coversands and Fen Edge Gravels.
- Very limited semi-natural habitat, most being lost through drainage and commercial agriculture and forestry; however, significant remnants of lowland heath and acid grassland survive on the Coversands and Fen Edge Gravels, and Bardney Limewoods represents England's biggest concentration of ancient small-leaved lime-dominated woodland.
- A landscape rich in medieval sites with remnant ridge and furrow, deserted medieval villages and a cluster of monastic sites close to the River Witham, while Lincoln Cathedral provides a landmark.
- Traditional building materials predominantly of brick and pantile. Large modern barns and outbuildings contrast with the established character.
- A deeply rural, tranquil landscape with sparsely distributed small, nucleated settlements and isolated farmsteads.
- A variety of recreational assets.

A1.4.3.4 NCA No. 45 - Northern Lincolnshire Edge Key Characteristics

- Elevated arable landscape with a distinct limestone cliff running north–south, the scarp slope providing extensive long views out to the west.
- Double scarp around Scunthorpe of ironstone, and extensive areas of wind-blown sand, the Coversands, giving rise to infertile soils.
- Underlying limestone supporting small areas of calcareous grassland.
- Few watercourses on the plateau.
- Productive soils on limestone plateau giving rise to a large-scale landscape of arable cultivation.
- Semi-natural habitats of acid and calcareous grassland and broadleaved woodland are small and fragmented, and often associated with disused quarries.
- Limited woodland cover, with patches of both broadleaves and conifers.
- Long, straight roads and tracks, often with wide verges.
- Nucleated medieval settlement patterns following major routes; sparse on higher land, with springline villages along the foot of the Cliff and some estates and parklands.
- Other development comprises the major settlements of Lincoln and Scunthorpe, with their prominent landmarks, and several active and re-used airfields.
- Vernacular architecture and walling, of local warm-coloured limestone with dark brown pantiles.
- Several ground features, especially on the plateau, include prehistoric burial mounds, Roman artefacts and abandoned medieval villages.

AI. 4.3.5 No. 46 - The Fens Key Characteristics

- Expansive, flat, open, low-lying wetland landscape.
- Jurassic clays are overlain by calcareous and silty soils over the coastal and central fens and by fen peat further inland. The soils are important for agriculture, which is significant for the rural economy. Some 40 per cent of England's bulbs and flowers are also produced in the Fens.
- The Wash is the largest estuarine system in Britain, supporting internationally important intertidal and coastal habitats. It provides important natural sea defences and a key role in climate change regulation. Flood storage areas on washes also provide significant biodiversity interest. True fen mainly occurs at remnant conservation sites.
- Overall woodland cover is sparse.
- The predominant land use is arable. Associated horticultural glasshouses are a significant feature. Beef cattle graze narrow enclosures.
- Open fields, bounded by a network of drains and the hierarchy of rivers. The road network largely follows the edges of the system of large fields. The drains and ditches are also an important ecological network.
- The area is very rich in geodiversity and archaeology.
- Large, built structures exhibit a strong vertical visual influence.
- Settlements and isolated farmsteads are mostly located on the modestly elevated 'geological islands' and the low, sinuous roddon banks (infilled ancient watercourses within fens). Elsewhere, villages tend to be dispersed ribbon settlements along the main arterial routes. Domestic architecture mostly comprises a mix of late Georgian-style brick houses and 20th century bungalows.

A1.4.3.6 NCA No. 47 - Southern Lincolnshire Edge Key Characteristics

- Elevated arable escarpment with a distinct cliff running north–south along the western boundary.
- Productive loamy soils on the limestone plateau, giving rise to a large-scale open landscape of arable cultivation with large, regular fields and few boundaries of tightly cut hedgerows or rubble limestone walls.
- Heavy clay soils in the east and south-west of the area, along with small areas of woodland and parkland.
- Semi-natural habitats in small, isolated fragments, with pockets of woodland on clay soils, fen at the foot of the dip slope and flower rich limestone grassland.
- Sparse settlement on higher land, with springline villages along the foot of the cliff, parklands and country estates on lower ground, and larger settlements to the east of the dip slope.
- Active and re-used airfields and long, straight roads and tracks, often with wide verges.
- Vernacular architecture and walling, especially in villages, of local warm-coloured limestone with dark brown pantiles.

A1.4.3.7 NCA No. 48 - Trent and Belvoir Vale Key Characteristics

- A gently undulating and low-lying landform in the main, with low ridges dividing shallow, broad river valleys, vales and flood plains. The River Trent flows north through the full length of the area.
- The bedrock geology of Triassic and Jurassic mudstones has given rise to fertile clayey soils across much of the area, while extensive deposits of alluvium and sand and gravel have given rise to a wider variety of soils.
- Agriculture is the dominant land use. While much pasture has been converted to arable use over the years, grazing is still significant in places.
- A regular pattern of medium to large fields enclosed by hawthorn hedgerows, and ditches in low-lying areas.
- Very little semi-natural habitat remains across the area; however, areas of flood plain grazing marsh are still found in places along the Trent.
- Extraction of sand and gravel deposits continues within the Trent flood plain and the area to the west of Lincoln. Many former sites of extraction have been flooded, introducing new waterbodies and new wetland habitats to the landscape.
- Extensive use of red bricks and pantiles in the 19th century has contributed to the consistent character of traditional architecture. Stone hewn from harder courses within the mudstones, along with stone from neighbouring areas, also feature as building materials.
- A predominantly rural and sparsely settled area linked by quiet lanes, contrasting with the busy market towns of Newark and Grantham, the cities of Nottingham and Lincoln, the major roads connecting them and the cross-country dual carriageways of the A1 and A46.
- Immense coal-fired power stations in the north exert a visual influence over a wide area, not just because of their structures but also the plumes that rise from them and the pylons and power lines that are linked to them. The same applies to the gas-fired power station and sugar beet factory near Newark, albeit on a slightly smaller scale.

A1.4.3.8 NCA No. 75 - Kesteven Uplands Key Characteristics

- Medium-scale, undulating mixed farmland landscape gently rising from the Fens in the east to the limestone ridge in the west. Large arable fields predominate on the higher ground of the Kesteven Plateau, with clipped and gapped hedgerows.
- Rivers Witham, East Glen and West Glen dissect the area.
- Underlying limestone supports shallow, well-drained calcareous loams, with areas of less permeable clayey soils developed on glacial till. Limestone quarries are scattered across the area, and these and roadside verges support important wildlife.
- Significant areas of woodland including semi-natural and ancient woodland, commercial woodlands and parkland landscapes.
- Nucleated settlement pattern comprising small traditional villages with few isolated farmsteads or houses. Villages are evenly distributed throughout the area with the exception of the line of settlements along the edge of the Fens to the east and larger villages towards Stamford.

- Picturesque villages and towns. Also present is a concentration of historic country houses with their associated parklands.
- An archaeologically rich area. Recreation includes restored sand and gravel quarries and long-distance routes and trackways.
- Major roads and the East Coast Main Line run north–south dissecting the landscape (such as the major viaducts at Great Ponton).

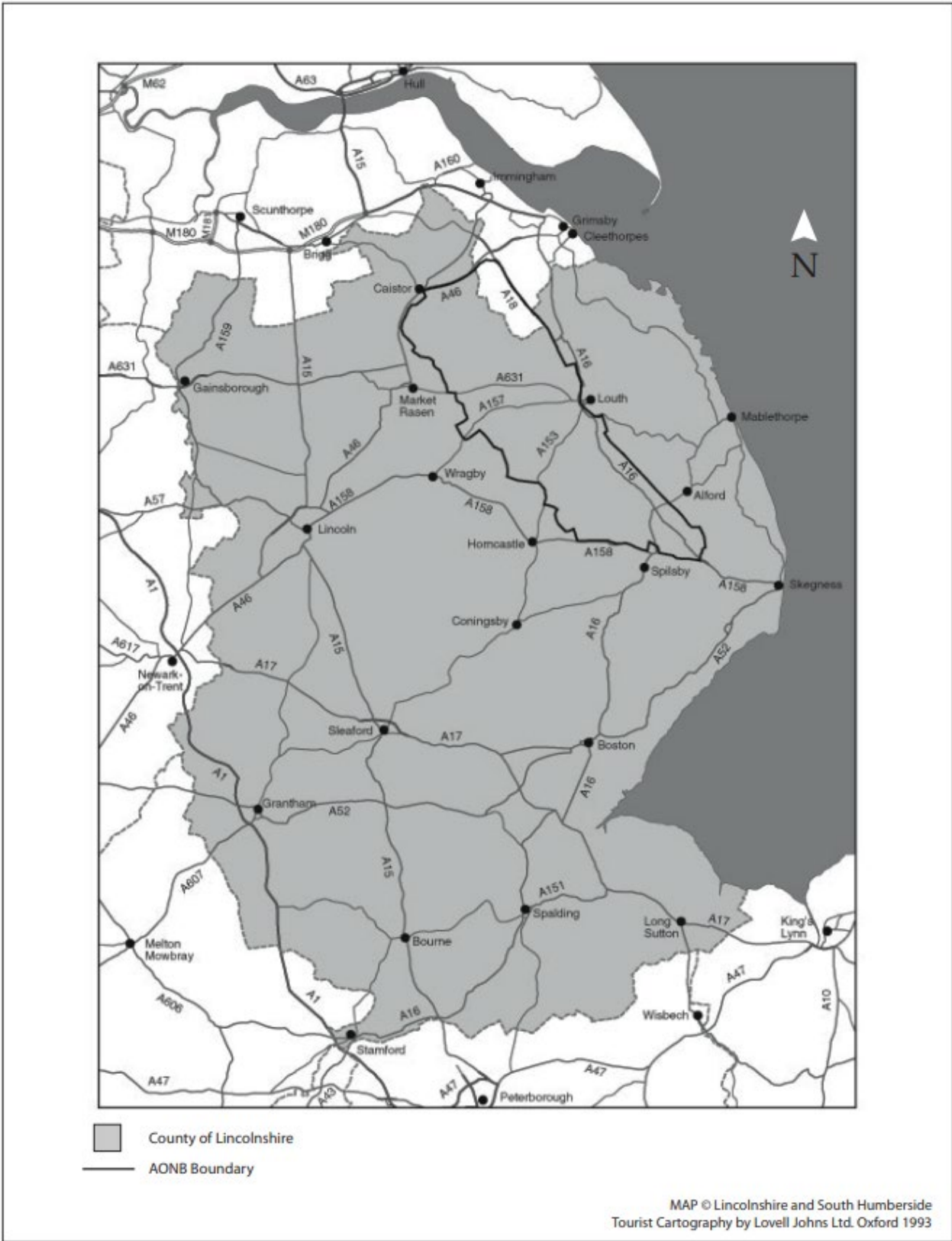
A1.4.4 Area of Outstanding Natural Beauty

Areas of Outstanding Natural Beauty (AONBs) are described by Natural England as areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes.

There are 34 AONBs solely in England covering approximately 15% of the country. These have been designated for protection under the Countryside and Rights of Way Act 2000.

In Lincolnshire there is one AONB, Lincolnshire Wolds (shown in the figure below), which lies in the north-eastern quarter of Lincolnshire, mid-way between Lincoln and the coast, surrounded by the relatively flat fens, coastal marsh and the Lincoln Clay Vale and covers an area of 558 sq. km. The area was designated in 1973 in order to acknowledge the areas outstanding qualities, including the; unique physiography, its scenic working landscape, archaeological merit and its value in the cultural landscape. Due to the location of Lincolnshire Wolds, it can be seen as unlikely that new mineral sites and associated facilities will be located in such an area that would negatively impact on any AONB.

Figure 9: Area of Outstanding Natural Beauty



Source: Lincolnshire Wolds AONB – Management Plan 2018 – 2023.

A1.4.5 Protected Lanes

Protected lanes have significant historic and landscape values. They generally originate from pre-historic track ways, which have been in continual (if lighter) use since. Protected lanes are often narrow, sunken and enclosed by a combination of mixed deciduous hedges and mature trees, ditches and raised verges that can be indications of great age.

The volume weights and speed of traffic is often limited to preserve the special character and due to their age and use they also have great biological value. This would distance their use as access routes for mineral related vehicles.

A1.4.6 Special Verges (Roadside Nature Reserves (RNRs))

Roadside Verges are important and if sensitively managed they can increase the biodiversity of the verges themselves and from that the surrounding countryside. The reason for this is that verges can act as corridors interlinking fragmented or isolated habitats. In terms of wildlife value, verges can be split into three broad types:

- Landscaped and intensively managed verges: poorest quality.
- Recently created verges left to colonise naturally: vary in ecological value.
- Ancient verges: often of high ecological value.

The roadside verges found within Lincolnshire are host to a variety invertebrates and small mammals, the summer months also see the verges coloured with swathes of wildflowers. The verges are protected through a partnership between Lincolnshire Wildlife Trust and Lincolnshire County Council, with schemes such as a road verge biomass harvester currently being trialled, which not only manages the vegetation but also assists in the generation of green energy, rural jobs, cost savings and self-funding biodiversity conservation.

65 RNRs are currently found in the county covering a total distance of 80km, together they form the largest remaining tract of semi-natural vegetation. This is largely a result of the intense agriculture in the region alongside accelerated industrial and housing growth.

A1.5 Biodiversity

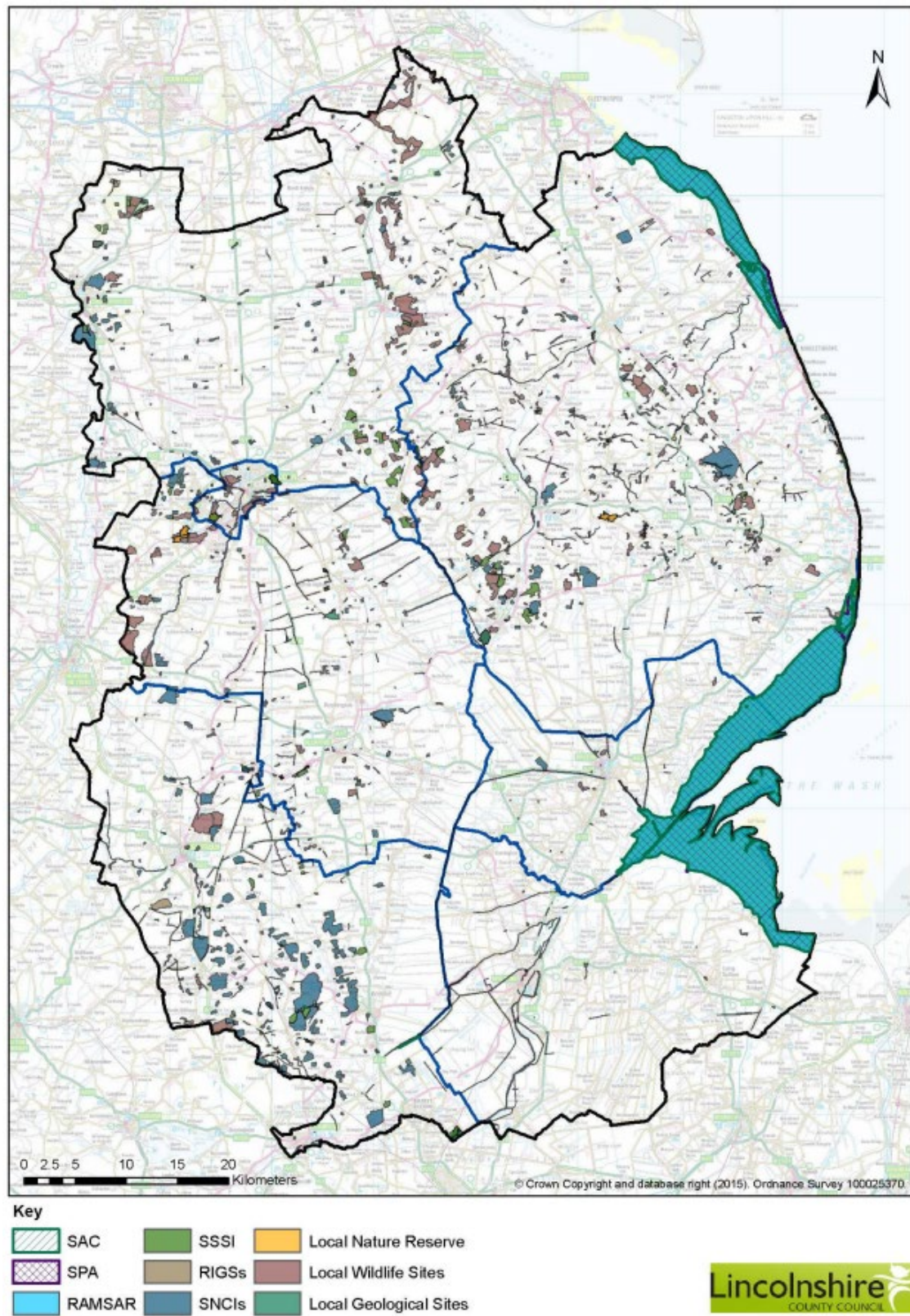
A1.5.1 Introduction

Lincolnshire is rural in character with a diverse wildlife. There are sites designated as internationally, nationally and locally important due to the habitats and species present. Areas of the Lincolnshire coastline affords international protection due to a series of saltmarshes, mudflats, lagoons and tidal estuaries which are not only important examples of habitats but are home to over 100,000 migratory birds. Conservation of sites and designations of biodiversity value have an important role within the planning process, land management, and controlling development pressure. Mineral management facilities and related activities need to respond to these designations in scale, location and any associated impacts that could affect biodiversity, flora and fauna and bird strike issues surrounding landfill sites.

A1.5.2 Land Designations

The below figure shows the wildlife designations of varying importance or significance within Lincolnshire. The majority of the coastal regions of the County are designated as Habitats Sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites), which are of international importance. The County also includes numerous Sites of Specific Scientific Interest (SSSIs), Regionally Important Geological Sites (RIGSs), Sites of Nature Conservation Interest (SNCIs), Local Nature Reserves (LNRs), Local Wildlife Sites (LoWSs) and Local Geological Sites (LoGSs). These are broadly distributed throughout the County with higher concentrations in the south west and the north to north east area.

Figure 10: Lincolnshire Nature and Wildlife Designations Map



Source: LMWLP Sustainability Appraisal Scoping Report, 2016

A1.5.2.1 Ramsar Sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention which have a high degree of protection. They often incorporate Special Protection Areas (SPAs) and Special Areas for Conservation (SACs).

In Lincolnshire there are two Ramsar sites which cover approximately 100,000ha and include coastal areas, estuaries and rivers. These include The Wash and the Humber Estuary. Development is not suitable on such sites or in any location that may see a decline in their habitat quality.

A1.5.2.2 Special Protection Areas and Special Areas for Conservation

Special Protection Areas (SPAs) are internationally protected sites which are classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC). SPAs are designated to protect rare and vulnerable birds and for regularly occurring migratory species. They are also often designated as Ramsar sites and comprise areas of estuaries and coasts. The plan review should seek to reduce flood risk arising from minerals and waste allocations through policy guidance.

Special Areas for Conservation (SACs) are sites of international importance designated under the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC). There are six SACs in the County: Baston Fen, Grimsthorpe, Humber Estuary, Saltfleetby-Theddlethorpe Dunes and Gibraltar Point, and The Wash.

Together the SPAs and SACs form 'Natura 2000', a European wide network of areas of special nature conservation interest. Due to the high level of protection that these designations are given appropriate measures to reduce potential adverse impacts arising from development proposals are required.

A1.5.2.3 Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSIs) are designated areas of land which are considered to be of special interest due to their fauna, flora, geological and, or physiographical features. In Lincolnshire there are 124 SSSIs covering a total of approximately 107,000 ha. There are over 4,000 SSSIs in England.

A1.5.2.4 National Nature Reserves

Natural England is the body empowered to declare National Nature Reserves (NNRs) in England, the Reserves being a selection of the very best parts of England's Sites of Special Scientific Interest. It is this underlying designation which gives NNRs their strong legal protection. The majority also have European nature conservation designations.

There are five NNRs located in Lincolnshire. They are the Bardney Limewoods, Donna Nook, Gibraltar Point, Saltfleetby-Theddlethorpe Dunes and The Wash. It is important that new primary extraction sites and associated activities do not negatively impact upon these designations through inappropriate location or through associated noise, vibration and pollution.

A1.5.2.5 Local Nature Reserves

Local Nature Reserves (LNRs) are designated by local authorities in conjunction with Natural England in recognition of their high interest in the local context for their wildlife or wildlife education value; or because they offer an important area for informal enjoyment of nature by the

public. There are currently 91 LNRs in Lincolnshire as shown in the figure above along with the designated NNRs.

A1.5.2.6 Local Wildlife Sites

Previously known as Sites of Importance for Nature Conservation (SINC) they are now known as Local Wildlife Sites (LoWS) and support both locally and nationally threatened wildlife species and habitats. In Lincolnshire there are approximately 1,270 LoWS, together with statutorily protected areas they represent the minimum habitat to maintain current levels of wildlife. New mineral facilities and sites should not be in areas that would see any decline in these levels of wildlife.

A1.5.2.7 Woodlands

The amount of woodland has diminished considerably in England over time. Three quarters has been lost since the 11th Century.

Ancient woodlands are wooded areas having been in continuous existence since 1600 AD. The amount of ancient woodland should not be reduced through new development, particularly of a large scale. Ancient Woodlands in Lincolnshire:

- Cover approximately 5000ha.;
- Include Bradley and Dixon woods, Grimsby; Legbourne Wood, Legbourne; Stapleford Woods, Stapleford and Reddings Woods, Kirkby on Bain.

A1.6 Water

A1.6.1 Introduction

Water policy in England aims to protect both public health and the environment by maintaining and improving the quality of water. In addition to the ever-increasing demand from human uses, water contributes to the natural environment, having ecological, aesthetic, scientific, educational and recreational value. The quality of water resources can be severely affected by mineral operations and landfill, where the quality of groundwater and waterbodies can become compromised by leachates. Considerations will include the proximity of vulnerable surface and groundwater.

In England, the Department for Environment, Food and Rural Affairs (Defra) oversees water policy. The Environment Agency makes sure that these policies are carried out and they have a responsibility to protect and enhance the environment.

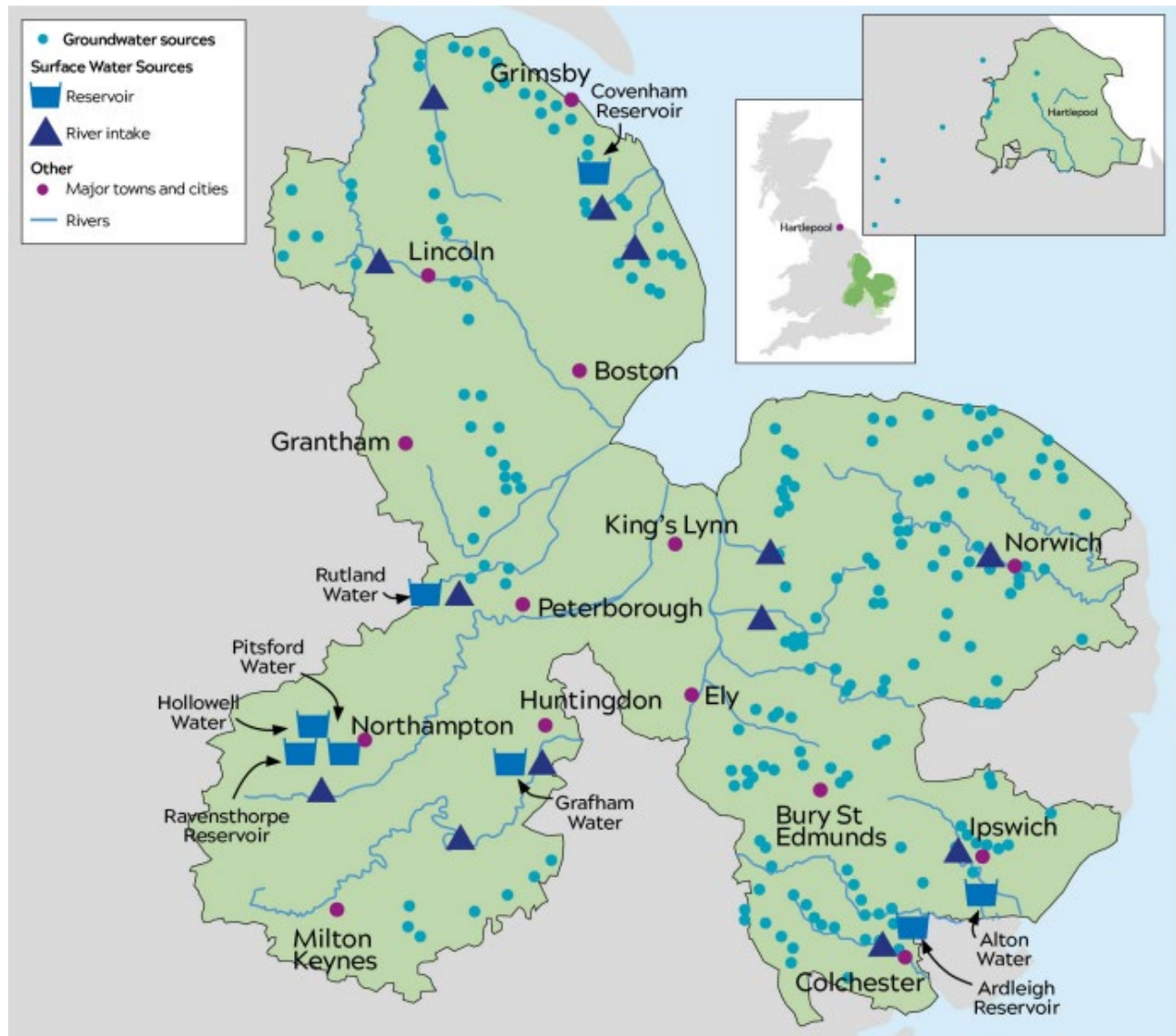
A1.6.2 Inland Water Resources in Lincolnshire

Lincolnshire is home to a number of important water resources. Most notably the rivers Witham, Welland, Nene and Humber. Minerals and Waste sites should take into account the potential impacts that their operation and development could have on the biological and chemical quality of these resources.

Mineral sites and facilities should not cause a decline in water quality where possible. Effects on water quality should be mitigated and minimised through effective (surface water) drainage mechanisms.

As well as extensive surface water resources, Lincolnshire contains Chalk, Lower Greensand, Spilsby Sandstone, Oolites, Triassic sandstone, Magnesian limestone, and Carboniferous Limestone aquifers (in order of aquifer age). Around 75% of groundwater in the UK is used for public water supply, for this reason, it is paramount for minerals and waste sites to avoid any unnecessary contamination to these resources.

Figure 11: Map of Anglian Water's water sources



Source: Drought Plan 2022, Draft Version (Anglian Water, March 2021)

A1.6.3 River Basin Management Plan

A1.6.3.1 Water Quality

The European Water Framework Directive requires member states to identify the individual river basins within their national territory and assign them to River Basin Districts (RBDs). Lincolnshire falls within two River Basin Districts; the River Basin Management Plan for the Anglian RBD and the

River Basin Management Plan for the Humber RBD although it is primarily within the former. These plans highlight the pressures facing the water environment and the actions that will address them.

Table 19: Water Quality – Anglian River Basin District

Status or Indicator	River, canals and SWTs	Lakes and SSSI ditches	Estuaries	Coastal	Surface waters combined	Ground water
Percentage of water bodies at good or better ecological status or potential now	10%	15%	11%	15%	11%	Not Applicable
Percentage of water bodies predicted to be at good ecological status or potential or better by 2021	13%	17%	11%	15%	13%	Not Applicable
Percentage of water bodies with an objective of good ecological status or potential or better	42%	57%	22%	31%	43%	Not Applicable
Percentage of water bodies at good chemical status now	99%	98%	100%	100%	99%	Not Applicable
Percentage of water bodies predicted to be at good chemical status by 2021	99%	98%	100%	100%	99%	Not Applicable
Percentage of water bodies with an objective of good chemical status	>99%	100%	100%	100%	>99%	Not Applicable
Percentage of water bodies at good or better overall status now	10%	15%	11%	15%	11%	29%
Percentage of water bodies predicted to be at good or better overall status by 2021	13%	17%	11%	15%	13%	32%

Status or Indicator	River, canals and SWTs	Lakes and SSSI ditches	Estuaries	Coastal	Surface waters combined	Ground water
Percentage of water bodies with an objective of good or better overall status	42%	57%	22%	31%	43%	55%

Source: River Basin management Plan for Anglian River Basin District, December 2015

Note: SWTs – Surface Water Transfers

The overall percentages of rivers, canals and surface water transfers in the Anglia River Basin District are expected to improve in ecological, chemical and biological status by 2021. This is also the case regarding lakes and SSSI ditches and combined surface waters. There is expected to be no percentage improvement or decline in estuaries or coastal waters.

The Anglian River Basin District is subdivided into catchment areas, the River Witham catchment area is the largest of these found within Lincolnshire, as well as a small part of Leicestershire. In addition to the River Witham, the Rivers Welland and Nene can also be found in the south of Lincolnshire.

Table 20: Water Quality – Humber River Basin District

Status or Indicator	Rivers, Canals and SWTs	Lakes	Estuaries	Coastal	Surface Waters Combined	Groundwater
Percentage of water bodies at good or better ecological status or potential now	15%	12%	29%	0%	15%	Not Applicable
Percentage of water bodies predicted to be at good ecological status or potential or better by 2021	18%	13%	29%	0%	17%	Not Applicable
Percentage of water bodies with an objective of good ecological status or potential or better	73%	75%	57%	100%	73%	Not Applicable
Percentage of water bodies at good chemical status now	96%	100%	86%	100%	97%	Not Applicable

Status or Indicator	Rivers, Canals and SWTs	Lakes	Estuaries	Coastal	Surface Waters Combined	Groundwater
Percentage of water bodies predicted to be at good chemical status by 2021	96%	100%	86%	100%	97%	Not Applicable
Percentage of water bodies with an objective of good chemical status	>99%	100%	100%	100%	>99%	Not Applicable
Percentage of water bodies at good or better overall status now	15%	12%	29%	0%	15%	43%
Percentage of water bodies predicted to be at good or better overall status by 2021	18%	13%	29%	0%	17%	47%
Percentage of water bodies with an objective of good or better overall status	73%	75%	57%	100%	73%	76%

Source: River Basin Management Plan for the Humber River Basin District, December 2015

Note: SWTs – Surface Water Transfers

The overall percentage of rivers, canals and surface water transfers in Humber River Basin District are expected to improve or remain the same in ecological, chemical and biological status by 2021. There is expected to be improvement in the ecological and biological status of lakes and Rivers, Canals and SWTs. There is expected to be no percentage improvement or decline in estuaries for ecological, chemical or biological status by 2021.

A1.6.4 Water resource pressures

Population growth and climate change are placing pressure on water resources globally, as a result, requirements are being put in place to address these pressures and mitigate them where possible and transform our existing water resources into more resilient systems. One of these requirements was outlined within the Environment Agency's – National Framework for Water Resources (2020). It requires cross boundary collaboration between water companies and large water users, largely through regional groups such as Water Resources East.

Figure 12: Anglian Water - Water Resource Zones as defined in the WRMP 2019



Source: Drought Plan 2022 – Draft Version (Anglian Water, March 2021)

Water Resource Zones (WRZs) have been developed as geographical areas to help develop forecasts of supply and demand for regions of similar climate, drought, growth and environmental impact. The WRZ describes an area within which supply infrastructure and demand centres are linked such that customers in the WRZ experience the same risk of supply failure.

Figure 13: Demand-side strategy and Supply-side strategy for water in East of England

Demand-side strategy:

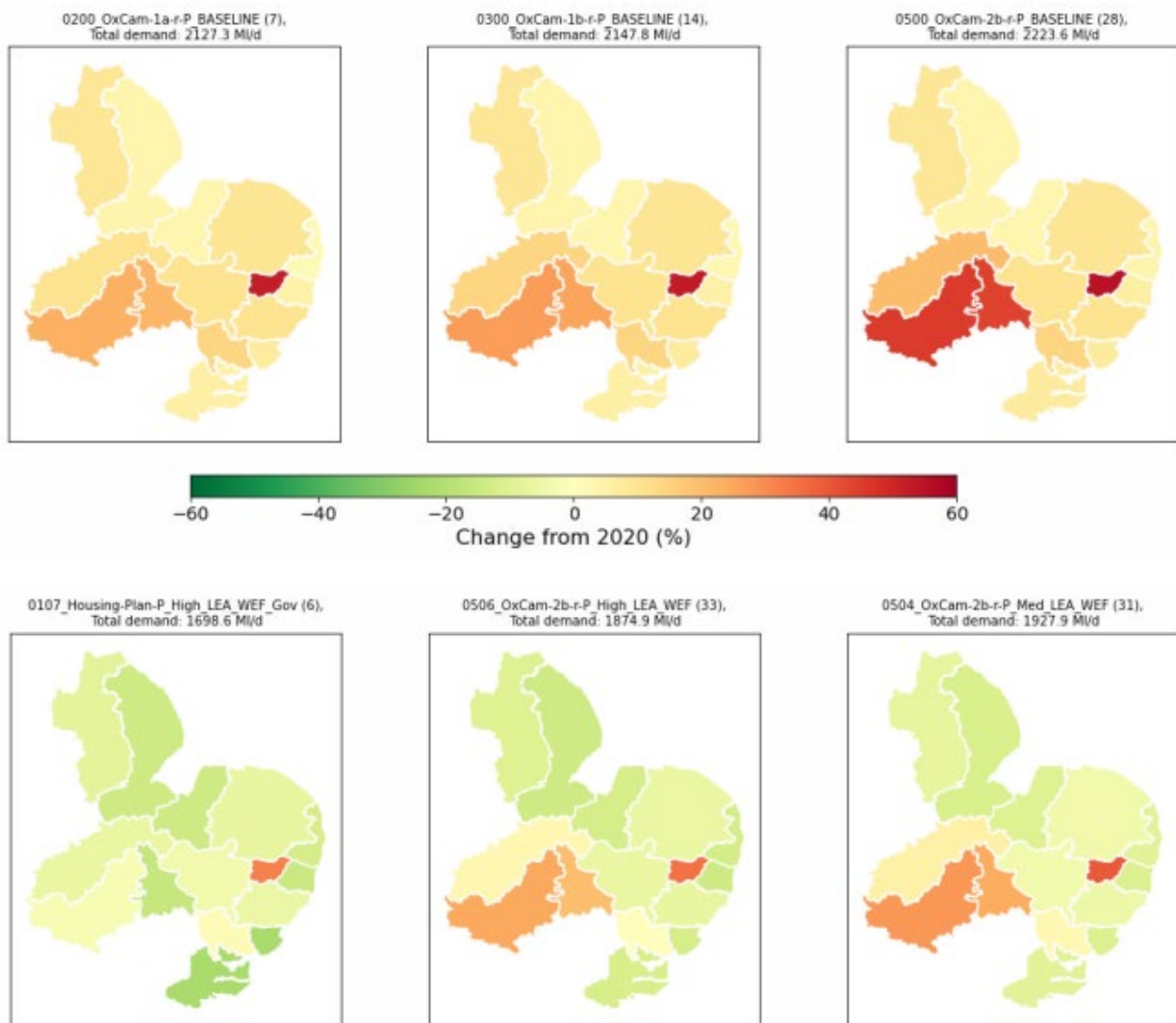
Now to 2025	2025 to 2030	2030 onwards
• Water company delivery (e.g. demand management such as PCC, leakage reduction) • Identification of multi-sector, non-household exemplars, and development of a collaborative strategy	• Significant focus on household and non-household water efficiency and demand management, particularly smart metering, leakage reduction • Innovation around tariffs • Focus on water sharing/trading opportunities using international learning • Delivery of multi-sector, non-household water efficiency approaches • Delivery of a long-term approach and trajectory	• Continued focus on water efficiency and delivery of a long-term approach

Supply-side strategy:

Now to 2025	2025 to 2030	2030 onwards
• Focus on immediate abstraction hotspots around chalk streams and the Broads • 'Next generation' desalination research and development • Strategic reservoir design and planning • Local infrastructure studies	• Strategic reservoir system construction • Intermediate solutions e.g. Anglian Water to Cambridge Water transfers • First re-use schemes and next generation desalination, linked to green hydrogen pilots • Aquifer storage and recover (ASR) pilot (Sherwood sandstone) • Local multi-sector infrastructure delivery (equal mix of green and grey?)* • Catchment investigations and planning (linked to environmental vision) • Development of further strategic storage options and potential transfers through Regional and National planning	• Strategic reservoir systems into supply • Wider re-use and next generation desalination options, including for public water supply? • ASR implementation • Wider green hydrogen implementation • Significant delivery of further multi-sector local infrastructure (more green than grey?) linked to catchment plans

Source: The Emerging Water Resources Regional Plan for Eastern England (Water Resources East, January 2022)

Figure 14: Public water demand scenarios to 2050 (% change from 2020)



Source: The Emerging Water Resources Regional Plan for Eastern England (Water Resources East, January 2022)

The figure above represents the spatial distribution of the six demand scenarios across the regional water resource zones. The top three Oxford to Cambridge baseline scenarios show the impacts of strategic growth with no demand management options. The bottom three scenarios demonstrate the beneficial impacts of demand management measures despite growth, which suggest that with effective uptake of demand management options, increased demand from growth can be mitigated.

A1.6.4.1 Drought

Figure 15: WRZs identified as particular risk of severe restrictions before 2025



Source: Drought Plan 2022 – Draft Version (Anglian Water, March 2021)

Anglian Water analysed their WRZs to ascertain their resilience to 1 in 200-year drought events. It was largely found that the zones are already resilient due to previous investments made. Five WRZs were identified as at risk of requiring severe water restrictions before additional investments due to be made up to 2025. One of the identified zones is Central Lincolnshire as shown in the figure above.

Groundwater sources that are vulnerable to drought have also been identified, with three of these being within Lincolnshire at Tier 1 (sources most at risk). Full details of all tier 1 designated groundwater sources can be found in the table below and all at risk sources can be found in the figure below.

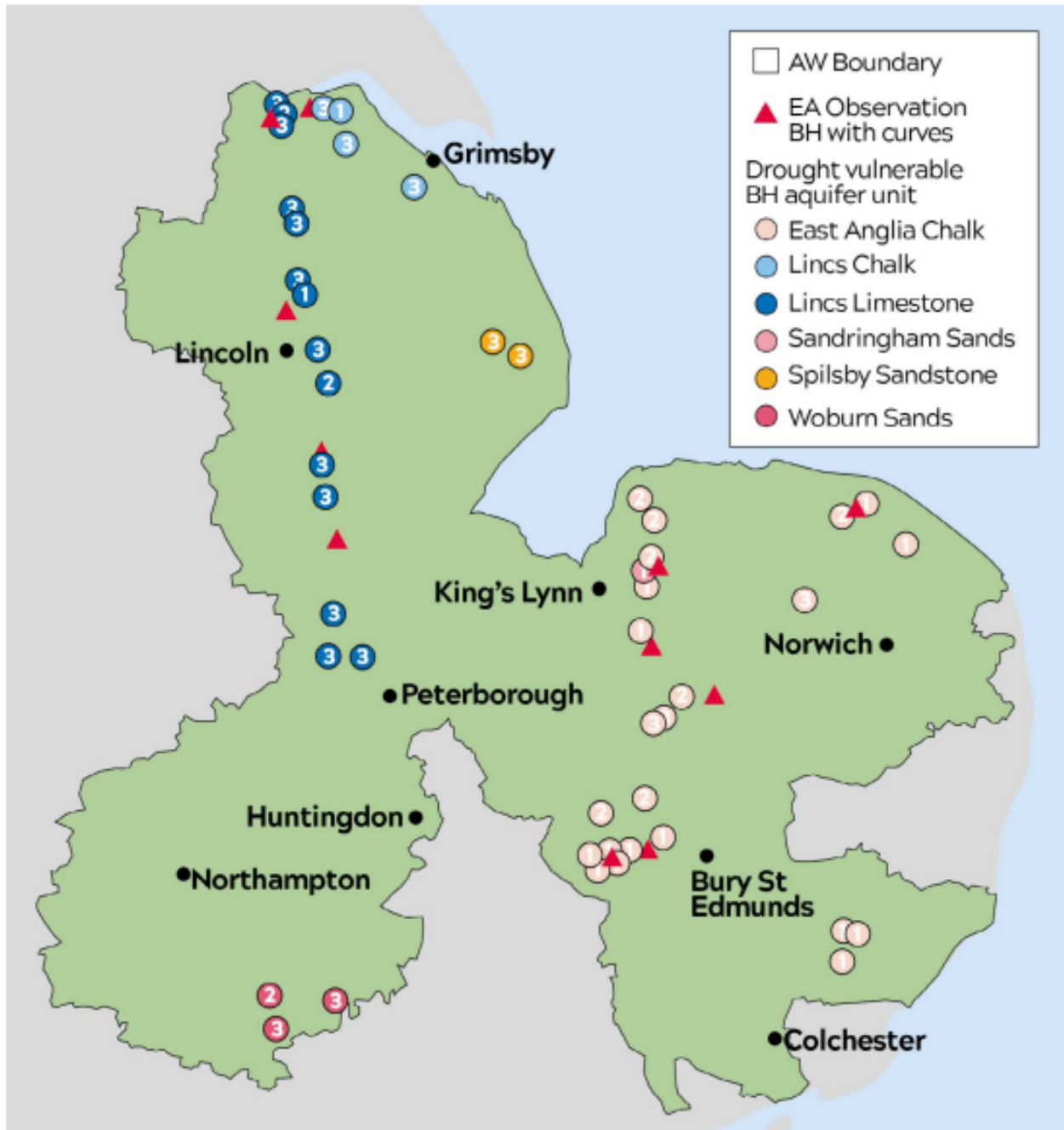
Table 21: Tier 1 drought vulnerable groundwater sources

Source	Aquifer unit	Water Resource Zone	Notes
Risby	East Anglia Chalk	Bury-Haverhill	Source added to the drought vulnerable tier 1 list due to severe drought risk to yield and supply impacts identified in the WRMP 2019
Goxhill 2	Lincs Chalk	Central Lincs	No change
Welton	Lincs Limestone	Central Lincs	No change
Winterton Holmes	Lincs Limestone	Central Lincs	Reviewing and monitoring groundwater level data to establish the new borehole's susceptibility to drought following its recent commissioning in 2018
Lower Links	East Anglia Chalk	Cheveley	Severe drought risk to yield and supply impacts identified in the WRMP 2019
Belstead	East Anglia Chalk	East Suffolk	General risk due to saline intrusion particularly at peak demand/low groundwater levels
Westerfield	East Anglia Chalk	East Suffolk	No change
Whitton	East Anglia Chalk	East Suffolk	No change
Newmarket AR	East Anglia Chalk	Newmarket	Severe drought risk to yield and supply impacts identified in the WRMP 2019
Long Hill	East Anglia Chalk	Newmarket	Severe drought risk to yield and supply impacts identified in the WRMP 2019
Moulton	East Anglia Chalk	Newmarket	Severe drought risk to yield and supply impacts identified in the WRMP 2019
Southfields	East Anglia Chalk	Newmarket	Severe drought risk to yield and supply impacts identified in the WRMP 2019

Source	Aquifer unit	Water Resource Zone	Notes
Congham	East Anglia Chalk	North Fenland	Spring flow licence condition
Gayton	East Anglia Chalk	North Fenland	No change
Metton	East Anglia Chalk	North Norfolk Coast	No change
North Walsham	East Anglia Chalk	North Norfolk Coast	Source added to the drought vulnerable tier 1 list due to severe drought risk to yield and supply impacts identified in the WRMP 2019
Marham	East Anglia Chalk	South Fenland	Severe drought risk to yield and supply impacts identified in the WRMP 2019

Source: Drought Plan 2022 – Draft Version (Anglian Water, March 2021)

Figure 16: Locations of drought vulnerable boreholes (number indicates tier and colour indicates aquifer unit) and Environment Agency observation boreholes with curves



Source: Drought Plan 2022 – Draft Version (Anglian Water, March 2021)

A1.7 Air Quality

A1.7.1 Introduction

The transportation of minerals to various sites throughout the County is an important issue with regard to associated air quality through vehicle emissions. In addition to transport related air quality

aggregate recycling dust from surface mineral operations can have a noticeable environmental impact and affect the quality of life of local communities. Amenities can potentially be affected by dust up to 1km from the source, although concerns are most likely to be experienced near to dust sources, generally within 100 m, depending on site characteristics and in the absence of appropriate mitigation

A1.7.2 Air Quality Management Areas

Each local authority in the UK has been carrying out reviews and assessments of air quality within their area since December 1997. The aim of reviewing and assessing the information is to ensure that future and current air quality objectives can be achieved by the deadlines set. If a local authority has an area with measurements of air pollution that are unlikely to meet the objectives, an Air Quality Management Area (AQMA) must be declared. The size of this area can vary from a section of one street to a much larger area of the locality. Likely routes for the transportation of mineral arisings should deviate from these areas where possible.

Air quality in Lincolnshire is generally good. There are currently four AQMAs within the Plan Area, as highlighted within the table below.

Table 22: Number of AQMAs within each District and Borough in Lincolnshire

Local Authority	Number of AQMAs
Lincoln City Council	1
North Kesteven	0
South Kesteven	1
South Holland	0
Boston	2
East Lindsey	0
West Lindsey	0
Total	4

Source: DEFRA, 2022

Table 23: Location of AQMAs within each District and Borough in Lincolnshire

Local Authority	AQMA	Pollutant
Lincoln City Council	Lincoln AQMA – the area generally follows the major road network in the City Centre and arterial routes and is primarily due to road traffic emissions	NO2
South Kesteven	South Kesteven District Council No.6 – Manthorpe Road, Wharf Road, High Street and London Road	NO2
Boston	Haven Bridge AQMA – The AQMA follows the A16 trunk road through the centre of town encompassing properties on either side. It extends from Queen Street roundabout through to the intersection of John Adams Way and Main Ridge East	NO2
Boston	Bargate Bridge AQMA – An area from Bargate roundabout extending east into the top part of Spilsby Road and incorporating the junctions of Freiston Road and Willoughby Road, Boston.	NO2

Source: Defra, 2022

All of the AQMAs have been designated due to increased levels of nitrogen dioxide. This infers that the levels of nitrogen dioxide at these sites exceed the National Air Quality Standard of $200\mu\text{g.m}^{-3}$ more than 18 times in a single year or that the annual mean target of $40\mu\text{g per m}^{-3}$ is being exceeded. High levels of nitrogen dioxide can have adverse effects on human health relating to the respiratory system.

A1.8 Noise

A1.8.1 Introduction

Noise from mineral sites can also be created from associated machinery and impact on neighbouring developments. It is good practice for noise generating activities to be positioned away from site boundaries. Existing buildings can also be used to shield the noise source. Unfortunately monitoring these sources of noise is problematic and cannot therefore be included in this baseline chapter.

A1.8.2 Ambient Noise

Ambient or environmental noise is defined as noise which is either unwanted or harmful. It is created by human activities and includes noise emitted by transport including road, rail and air traffic, as well as from sites of industrial activity. Mapping of ambient noise in England was carried out during 2006-07 in line with the Government's work to implement the EU's Environmental Noise Directive.

Table 24: Summary of Key Terms

Term	Explanation
dB(A)	A unit of sound pressure level, adjusted in accordance with the A weighting scale, a scale which takes into account the increased sensitivity of the human ear at some frequencies
Lden	The day, evening and night level. Lden is a logarithmic composite of the Lday, Levening and Lnight levels but with the 5dB(A) being added to the Levening value and 10dB(A) being added to the Lnight level.
Lnight	The A-weighted average sound level over the 8hour night period of 2300-0700 hours.

Source: Descriptions taken from DEFRA, 2008

A1.9 Climatic Factors

A1.9.1 Introduction

Planning's role is not only to shape sustainable communities which are resilient to future climates but to reduce emissions and minimise the human impact on the environment. Changes in climate are inevitable and 'PPS: Planning and Climate Change' acknowledges that in the future "we are likely to see more extreme weather events, including hotter and drier summers, flooding and rising sea-levels increasing the risk of coastal erosion" in the UK.

Mineral development has important climate change impacts, particularly with regards to the problem of transporting such a bulky resource

A1.9.2 Climate Change Projections

The UK Climate Impact Programme has developed the UK Climate Change Projections 2018 (UKCP18) which models future climate scenarios for the UK.

The key findings from UKCP18 of how our climate might change in the future are:

- All areas of the UK will get warmer, and the warming is greater in summer than in winter. Across the UK, central estimates of the average regional summer (June, July, August) temperature rise by the 2070s are between -0.1 and 3.3°C in the low emission scenario and 0.6 and 5.9°C in the high emission scenario.
- Across the UK, central estimates of regional average summer precipitation change are projected to be between -28% - +9% in the low emission scenario and -57% to +8% in the high emission scenario by the 2070s.
- Greater sea level rise in the south of the UK than the north. The central estimates for sea level rise (taking into account land movement) show that sea level is projected to rise by 29 – 70cm in the low emission scenario and 53-115cm in the high emission scenario by 2100.

- Across the UK, central estimates of regional average winter precipitation change are projected to be in the region of -4% to 22% in the low emission scenario and -3% to +33% in the high emission scenario.
- Reaching a peak in global emissions in 2016 and achieving a 4% decrease per year thereafter, a global temperature rise to 1.8°C by 2050 is expected, which would then stabilise at about 2°C by 2100.

Sea level rise and subsidence will lead to more frequent flooding of coastal areas. Increased temperatures and greater fluctuation in annual precipitation will further increase pressure on water resources. With this in mind it is possible to determine the potential flood risk that mineral sites can add to water bodies in areas of concern.

A1.9.3CO₂ Emissions

Changes in land use, and various industrial processes are adding heat-trapping gases, particularly carbon dioxide (CO₂), to the atmosphere. There is now roughly 40% more CO₂ in the atmosphere than there was before the industrial revolution. One of the main causes of increased CO₂ in the atmosphere is through the burning of fossil fuels for electricity and transportation.

Table 25: Reduction in CO₂ Emissions across Lincolnshire

Area	2019 per Capita CO ₂ Emission (tonnes)	Reduction Since 2015 (%)
North Kesteven	6.8	10.53
South Kesteven	6.2	12.68
South Holland	6.3	13.70
Boston	4.5	18.18
East Lindsey	6.3	12.5
West Lindsey	6.4	8.57
Lincolnshire average	5.8	12.12

Source: Department for Business, Energy and Industrial Strategy, 2021

Within Lincolnshire, North Kesteven District residents emitted the highest per capita amount of CO₂ at 6.8t with Boston residents emitting the least at 4.5t. The Lincolnshire average was recorded at 5.8t.

There was a 12.12% per capita reduction in CO₂ emissions across Lincolnshire between 2015 and 2019. All local authorities in the plan area experienced a reduction in CO₂ emissions per capita. The greatest CO₂ emissions reduction per capita was in Boston, achieving a 18.18% reduction between 2015 and 2019. The location of new extraction sites and extraction facilities should not compromise any district or borough's reductions beyond what is reasonably acceptable.

Table 26: CO2 Emissions in Kilotonnes by Sector 2019

Authority	Industrial	Commercial	Public Sector	Domestic	Transport	LULUCF	Total
North Kesteven	95.5	41.8	21.5	172.2	239.3	225.5	795.8
South Kesteven	192.4	53.8	17.9	209.2	339.7	69.1	882.1
South Holland	111.2	44.3	7.2	140.5	190.7	109.2	603.1
Boston	62.3	21.9	8.7	94.9	117.5	8.3	313.7
East Lindsey	139.9	66.2	15.1	224.9	274.2	174	894.2
West Lindsey	110.3	35.7	13	152.7	221.8	80.3	613.8
Lincolnshire Total	711.6	263.7	83.4	994.4	1383.2	666.4	4102.7

Source: DBEI, 2019

Note: LULUCF - Land use, land-use change, and forestry.

In Lincolnshire the largest proportion of CO2 emissions produced in 2019 was within the transport sector, accounting for 33.7% of total CO2 emissions, followed by the domestic sector which produced 24.2%. Recycling facilities and where possible, primary extraction sites should be located in strategic locations in order to minimise emissions produced through transportation around the County, which equate to 1,383kt of CO2 in 2019.

A1.10 Flooding

A1.10.1 Introduction

River flooding is a natural process that plays an important role in shaping the natural environment. The effects of heavy and, or prolonged rainfall can be increased in severity as a result of planning decisions relating to the location, design, nature of settlement and land use. Increasingly flooding is viewed as a potential consequence of future climate change.

Although flooding cannot be completely prevented, its impacts can be avoided and reduced through good planning and land management. Data compiled on this subject is useful to identify whether broad potential future locations for development represent the most appropriate choices.

Impacts on water flows may arise from the presence of hard surfaces being located in previously soft surfaced areas. The larger the facility or plant, the more significant such effects could become, especially if located near water-bodies associated with flooding. Drainage systems may be required to ensure that such effects are minimised.

A1.10.2 Flood Zones

NPPF requires development to be carried out in areas of as low a risk of flooding as possible. A risk-based sequential test should be applied at all stages of the planning process. The aim is to steer new development to areas with the lowest probability of flooding.

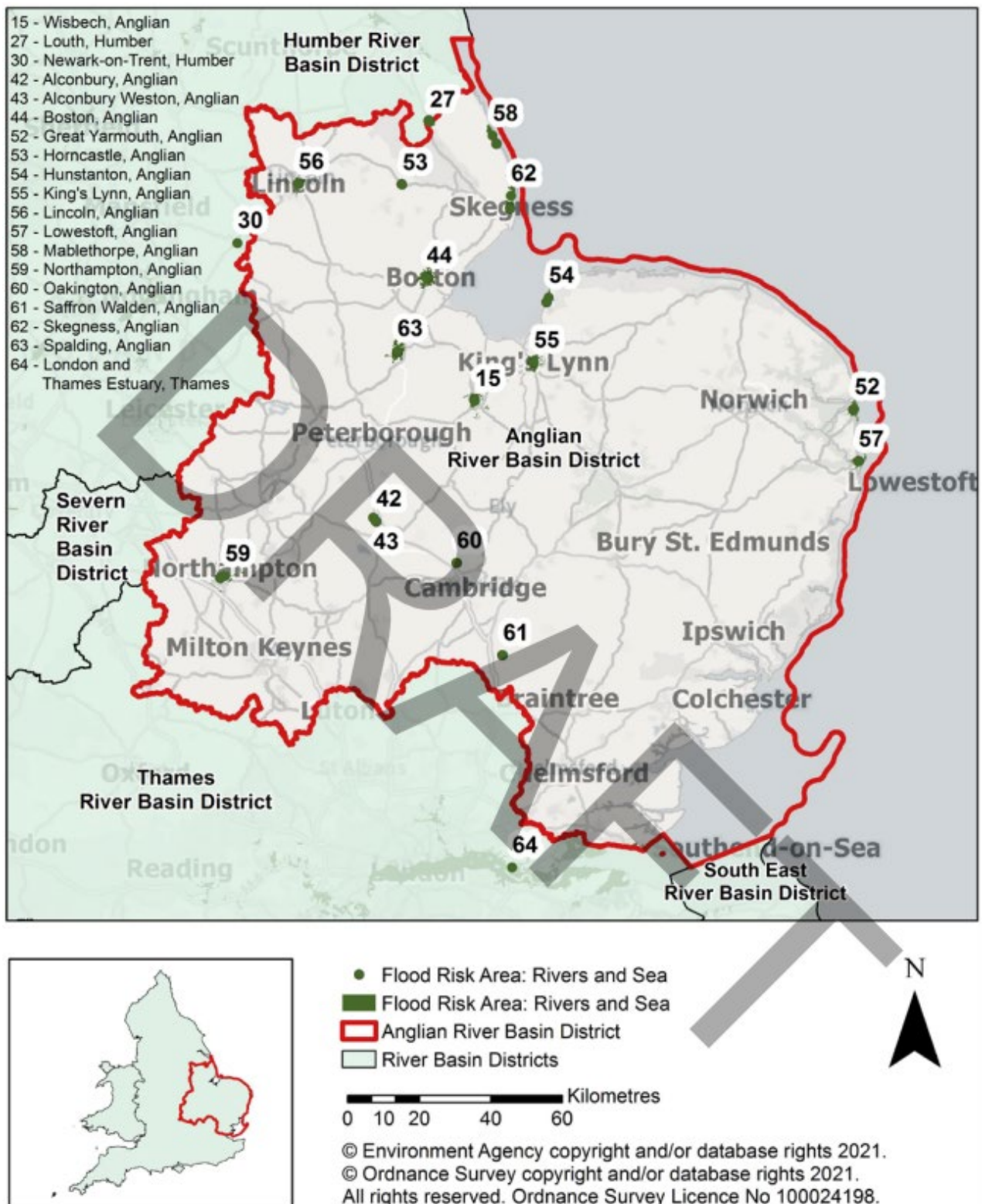
It is recognised that sand and gravel extraction is a water compatible use. Sequential working and restoration can be designed to reduce flood risk by providing flood storage and attenuation. This is likely to be most effective at a strategic (county) scale. Operations can pose a pollution threat. Risks will need to be fully taken into account in applying the sequential approach. Sand and gravel extraction are however considered to be a water-compatible use and their presence is permitted in Flood Zone 3a.

A hierarchy of flood zones for application of the sequential test is defined as:

- Zone 1 - Low Probability: Encompasses land assessed as having a less than 1 in 1000 annual probability of flooding in any year (<0.1%).
- Zone 2 - Medium Probability: Comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%).
- Zone 3a - High Probability: Covers land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) in any year.
- Zone 3b - The Functional Floodplain: This zone consists of land where water has to flow or be stored in times of flood. It is land which would flood with an annual probability of 1 in 20 (5%) or greater in any year.

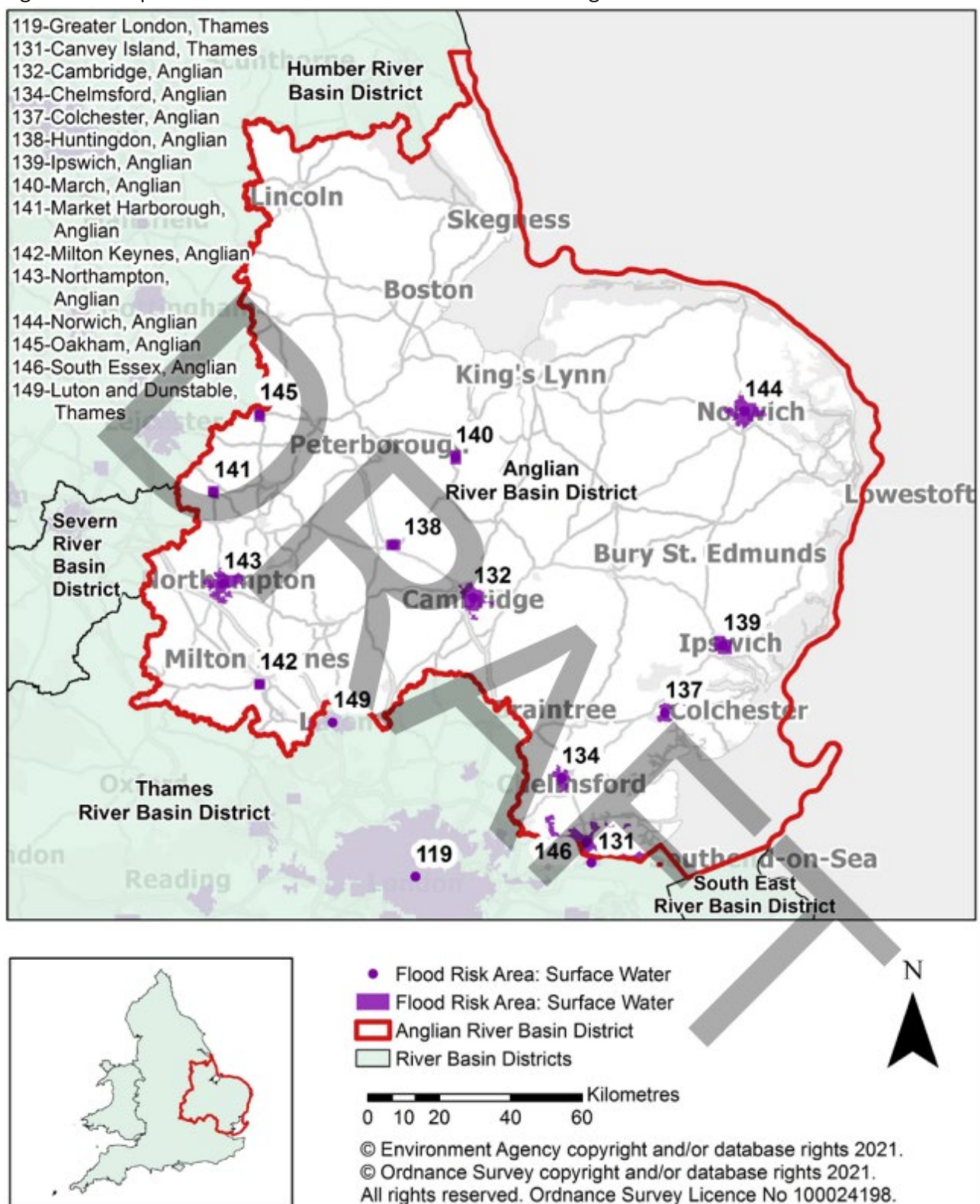
A1.10.3 Anglian River Basin District – Flood Risk

Figure 17: Map of River and Sea Flood Risk Areas in the Anglia River Basin District



Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Figure 18: Map of Surface Water Flood Risk Areas in the Anglia River Basin District



Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 27: Historical flood events from all sources since 2015 within the Anglian River Basin. Number of properties rounded to the nearest 10

Date of flood	Location and approximate number of properties affected shown in brackets	Source of flood water
July 2015	Lowestoft (30)	Ordinary watercourse, surface water
March 2016	Cambridgeshire (30), Northamptonshire (25)	Main river
June 2016	Norfolk County (multiple locations) (250)	Surface water, ordinary watercourse
June 2016	Milton Keynes (50)	Surface water
May 2018	Milton Keynes (500), Northamptonshire (180)	Surface water
June 2019	East Lindsey District (90)	Main river, surface water, ordinary watercourse
October 2019	Norfolk County (multiple locations) (100), Lowestoft and Beccles in Suffolk County (30)	Surface water, ordinary watercourse
August 2020	Norfolk (60), Cambridgeshire (30), Northamptonshire (80)	Surface water, ordinary watercourse
Winter 2020/21	Cambridgeshire (340), Bedford Borough (60), Buckinghamshire (42), Essex (30), Milton Keynes Borough (100), Norfolk (300), Northamptonshire (140)	Surface water, groundwater, main river, ordinary watercourse
June 2021	Milton Keynes (60)	Surface water and sewer
July 2021	Peterborough (80)	Surface water

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 28: Implementation status of flood prevention measures for the Anglian RBD

Progress	Number of measures	%
Ongoing	612	61
Ongoing construction	5	0
Completed	240	24
Superseded	109	11
Not started – proposed	28	3
Not started – agreed	13	1

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 29: Summary of River and Sea flood risk to people in the Anglian RBD

Risk to people	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Number of people in RBD	6,404,735	39,880	166,798	272,003	58,925
Number of services	47,081	660	1,896	2,293	473

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 30: Summary of River and Sea flood risk to economic activity in the Anglian RBD

Risk to economic activity	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Number of non-residential properties	255,953	4,453	10,141	16,004	3,646
Number of airports	3	1	0	0	0
Length of road (km)	3,380	31.9	186.8	147.1	32.1
Length of railway (km)	1772.1	57.2	150.5	122.6	15.2
Agricultural land (ha)	2,163,577	90,760	216,813.5	144,289.2	21,352

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 31: Summary of River and Sea flood risk to the natural and historic environment in the Anglian RBD

Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Number of EU designated bathing waters within 50 metres	13	10	0	0	0
Number of Environmental Permitting Regulations (EPR) installations within 50 metres	780	55	51	56	13
Area of Special Area of Conservation (SAC) within area (ha)	195,840.1	12,609.8	2,103.1	2,169.9	59.7
Area of Special Protection Area (SPA) within area (ha)	324,900.4	21,694.5	2,955.8	3,134.7	162.1

Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Area of Ramsar site within area (ha)	119,942.6	21,022.4	2,786	2,918	85.6
Area of World Heritage Site within area (ha)	0	0	0	0	0
Area of Site of Special Scientific Interest (SSSI) within area (ha)	186,109	24,514.6	4,384.7	4,163.5	316.4
Area of parks and gardens within area (ha)	27,942.2	586.5	516.2	114.6	23.4
Area of scheduled ancient monument within area (ha)	7,404	348.6	503.3	272.1	37.1
Number of listed buildings within area	64,034	802	1,834	1,833	521
Number of licensed water abstractions within area	7,411	1,858	1,090	524	48

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 32: Summary of Surface Water flood risk to people in the Anglian RBD

Risk to people	Total in RBD	High risk	Medium risk	Low risk
Number of people in RBD	6,404,735	69,209	106,148	508,664
Number of services	47,081	444	723	2,678

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 33: Summary of Surface Water flood risk to economic activity in the Anglian RBD

Risk to economic activity	Total in RBD	High risk	Medium risk	Low risk
Number of non-residential properties	255,953	3,767	5,767	23,973
Number of airports	3	3	0	0
Length of road (km)	3,380	120.1	117.1	388.1
Length of railway (km)	1772.1	91.2	74.8	196.4
Agricultural land (ha)	2,163,577	43,513.4	33,278.1	139,283.8

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 34: Summary of Surface Water flood risk to the natural and historic environment in the Anglian RBD

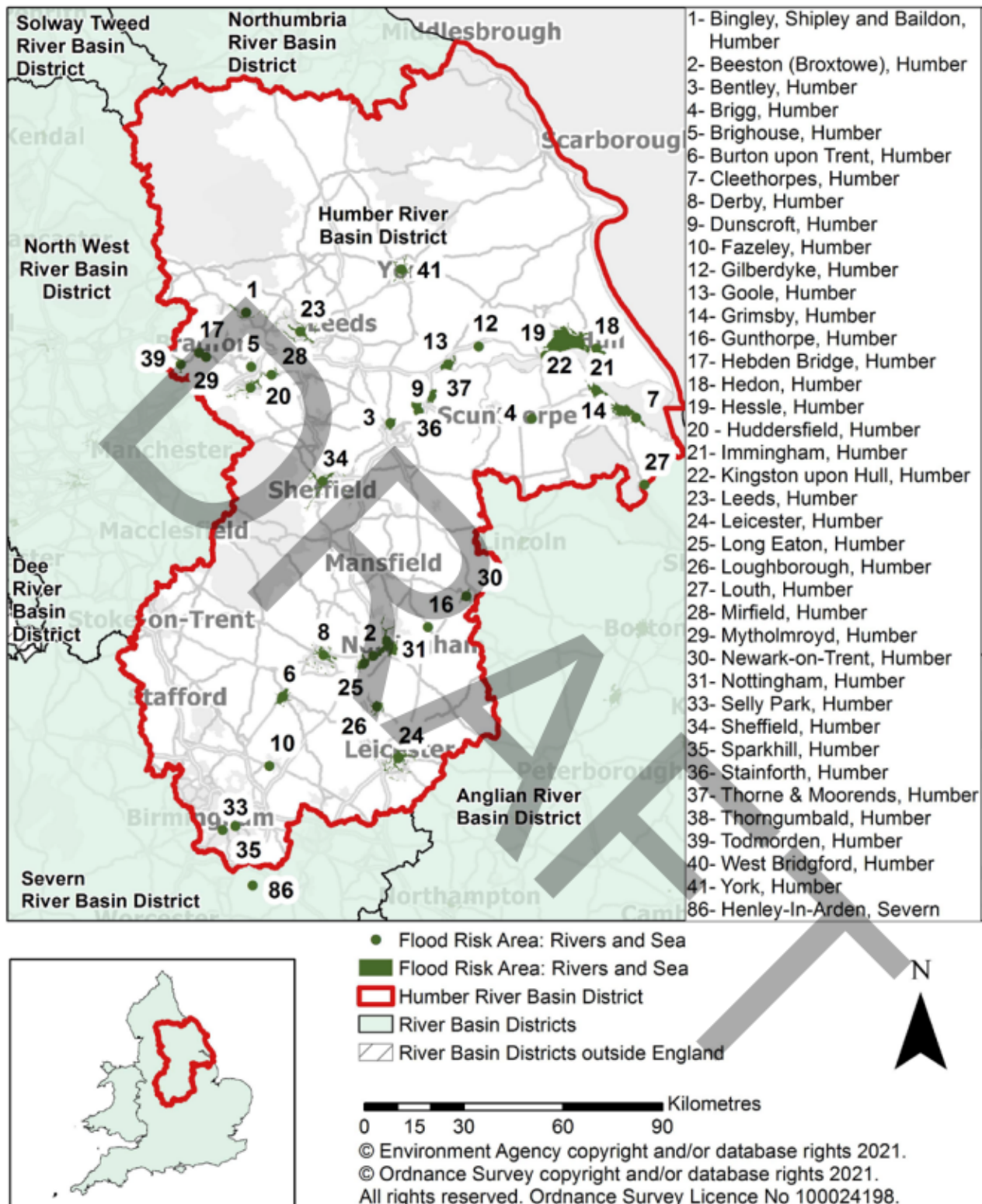
Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk
Number of EU designated bathing waters within 50 metres	13	1	0	3
Number of Environmental Permitting Regulations (EPR) installations within 50 metres	780	250	111	198
Area of Special Area of Conservation (SAC) within area (ha)	195,840.1	280.1	269.1	1,573.5
Area of Special Protection Area (SPA) within area (ha)	324,900.4	567.2	586.6	3,407.9
Area of Ramsar site within area (ha)	119,942.6	525.7	470.8	2,605.9
Area of World Heritage Site within area (ha)	0	0	0	0

Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk
Area of Site of Special Scientific Interest (SSSI) within area (ha)	186,109	1,398.5	1,192.8	5,703.1
Area of parks and gardens within area (ha)	27,942.2	667.2	387.2	1,438.5
Area of scheduled ancient monument within area (ha)	7,404	209.3	143.8	517.1
Number of listed buildings within area	64,034	420	311	2,053
Number of licensed water abstractions within area	7,411	1,258	487	1,322

Source: Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

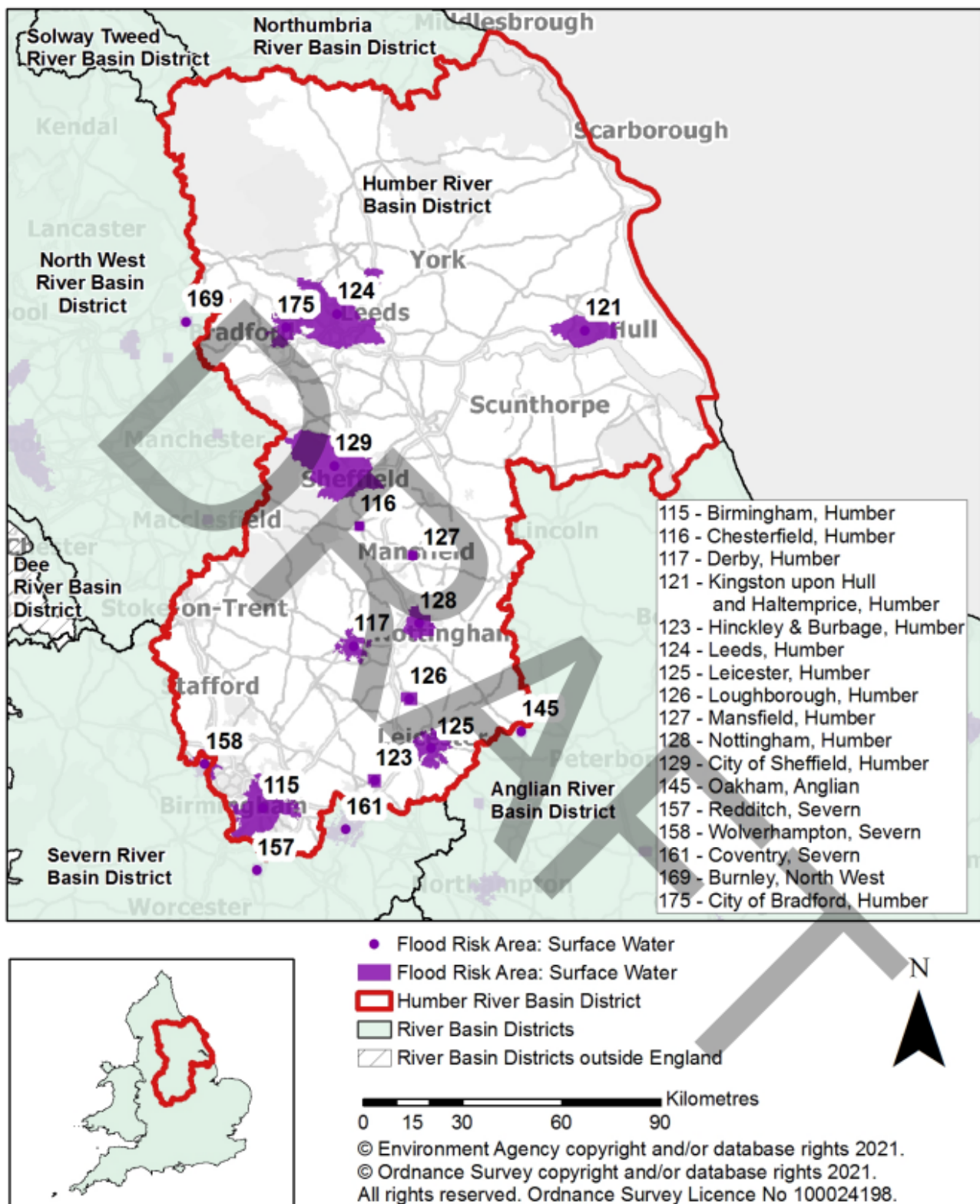
A1.10.4 Humber River Basin District – Flood Risk

Figure 19: Map of River and Sea Flood Risk Areas in the Humber River Basin District



Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Figure 20: Map of Surface Water Flood Risk Areas in the Humber River Basin District



Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 35: Historical flood events from all sources since 2015 within the Humber River Basin. Number of properties rounded to the nearest 10

Date of flood	Location and approximate number of properties affected shown in brackets	Source of flood water
December 2015	Yorkshire (6000)	Main river, ordinary watercourse, surface water
March 2016	Warwickshire (70)	Main river
June 2016	South Derbyshire (62), Bolsover (20), Melbourne (40), Breedon on the Hill (20), Gotham (20), Mansfield (20), Birmingham (200), Dudley (120), Staffordshire (30), Sandwell (220)	Main river, ordinary watercourse, surface water, sewer
November 2016	New Mills & Whalley Bridge (30)	Main river, ordinary watercourse, surface water
August 2017	North East Lincolnshire (20)	Surface water
August 2017	Scarborough (70)	Surface water
November 2017	Tintwistle (20)	Surface water
June 2018	Lancashire (60), Sutton-On-Trent (40)	Surface water, ordinary watercourse
September 2018	Matlock (20), Doncaster (20)	Surface water
June 2019	Arnold (50)	Surface water, main river
June 2019	Richmondshire (240), Buxton (30), Whaley Bridge (30)	Main river, ordinary watercourse, surface water
October 2019	Loughborough (40), Stoney Stanton (40), Staffordshire (90)	Main river, ordinary watercourse, surface

Date of flood	Location and approximate number of properties affected shown in brackets	Source of flood water
		water
November 2019	Sheffield (80), Rotherham (150), East Riding (30), North Lincolnshire (50), Doncaster (800), Eglington (20), Lowdham (100), Retford (30), Shireoaks (25), Worksop (310), Derbyshire wide (380), Derby (30)	Main river, ordinary watercourse, surface water, sewer
February 2020	Appleby Magna (20), Cropwell Butler (20), Lowdham (80), Radcliffe on Trent (40), Tollerton (14), Derbyshire wide (100), Staffordshire (270), Yorkshire wide (1500), Bradford (70), Wolverhampton (20)	Main river, ordinary watercourse, surface water
June 2020	Ilkeston (60), Ruddington (20), Beeston (90), Nottingham (50), Walsall (30), Sandwell (20)	Surface water, sewers, ordinary watercourse
December 2020	Yorkshire wide (50)	Main river, ordinary watercourse, surface water
January 2021	Derbyshire wide (50), Yorkshire wide (200)	Surface water, main river
June 2021	Solihull (200), Warwickshire (20)	Surface water, sewer

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 36: Implementation status of flood prevention measures for the Humber RBD

Progress	Number of measures	%
Ongoing	524	58
Ongoing construction	19	2

Progress	Number of measures	%
Completed	141	17
Superseded	74	7
Not started – proposed	129	14
Not started – agreed	17	2

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 37: Summary of River and Sea flood risk to people in the Humber RBD

Risk to people	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Number of people in RBD	12,329,529	59,933	335,549	570,295	86,979
Number of services	76,511	1,162	3,592	4,499	661

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 38: Summary of River and Sea flood risk to economic activity in the Humber RBD

Risk to economic activity	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Number of non-residential properties	485,247	10,039	27,552	30,632	4,865
Number of airports	5	1	0	0	0

Risk to economic activity	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Length of road (km)	4,978	81	235	161	28
Length of railway (km)	3,175	122	327	179	49
Agricultural land (ha)	1,541,332	63,459	128,928	55,305	6,937

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 39: Summary of River and Sea flood risk to the natural and historic environment in the Humber RBD

Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Number of EU designated bathing waters within 50 metres	11	10	0	1	0
Number of Environmental Permitting Regulations (EPR) installations within 50 metres	1,121	97	112	117	12
Area of Special Area of Conservation (SAC) within area (ha)	188,156	3,651	3,348	794	11
Area of Special Protection Area (SPA) within area (ha)	193,209	3,797	2,511	812	5
Area of Ramsar site within area (ha)	36,697	2,763	516	135	4
Area of World Heritage Site within area (ha)	8,594	701	393	158	3
Area of Site of Special Scientific Interest (SSSI) within area (ha)	212,573	7,488	4,779	1,035	28

Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk	Very low risk
Area of parks and gardens within area (ha)	29,336	1,106	727	179	17
Area of scheduled ancient monument within area (ha)	9,270	235	423	204	37.1
Number of listed buildings within area	53,028	1,721	2,419	1,788	262
Number of licensed water abstractions within area	5,581	1,455	629	326	51

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 40: Summary of Surface Water flood risk to people in the Humber RBD

Risk to people	Total in RBD	High risk	Medium risk	Low risk
Number of people in RBD	12,329,529	78,329	157,569	833,050
Number of services	76,511	570	913	4,721

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 41: Summary of Surface Water flood risk to economic activity in the Humber RBD

Risk to economic activity	Total in RBD	High risk	Medium risk	Low risk
Number of non-residential properties	485,247	6,946	10,702	47,940
Number of airports	5	5	0	0

Risk to economic activity	Total in RBD	High risk	Medium risk	Low risk
Length of road (km)	4,978	174	203	645
Length of railway (km)	3,175	168	159	365
Agricultural land (ha)	1,541,332	27,468	20,859	89,543

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

Table 42: Summary of Surface Water flood risk to the natural and historic environment in the Humber RBD

Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk
Number of EU designated bathing waters within 50 metres	11	1	3	2
Number of Environmental Permitting Regulations (EPR) installations within 50 metres	1,121	285	230	309
Area of Special Area of Conservation (SAC) within area (ha)	188,156	1,541	1,064	8,911
Area of Special Protection Area (SPA) within area (ha)	193,209	1,322	966	8,506
Area of Ramsar site within area (ha)	36,697	20	24	248
Area of World Heritage Site within area (ha)	8,594	222	136	469
Area of Site of Special Scientific Interest (SSSI) within area (ha)	212,573	2,408	1,625	10,770
Area of parks and gardens within area (ha)	29,336	676	370	1,358

Risk to natural and historic environment	Total in RBD	High risk	Medium risk	Low risk
Area of scheduled ancient monument within area (ha)	9,270	166	119	442
Number of listed buildings within area	53,028	977	460	1,807
Number of licensed water abstractions within area	5,581	706	297	887

Source: Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021)

A1.10.5 Groundwater Flood Risk

There is no available information on future groundwater flood risk in Lincolnshire.

A1.11 Health

A1.11.1 Introduction

The implications of noise and air quality are dealt with in the Air Quality chapter of this report. As a result, road safety issues form the majority of this chapter. The NPPF states that local planning authorities should ensure, in granting planning permission for mineral development, that there are no unacceptable adverse impacts on human health. The National Planning Policy for Waste states that, in considering planning applications for waste management facilities, waste planning authorities should consider the likely impact on the local environment and on amenity. It should therefore be ensured that an acceptable balance is maintained between meeting Identified mineral and waste needs and protecting the local environment and amenity of residents living close to mineral or waste operations. No reliable data exists to determine the effects on health from minerals and waste operations, however the theme is a very important one and effects need to be avoided in the first instance or otherwise minimised and mitigated. Human health is therefore cautiously considered throughout the SA, through proximity testing at the site assessment stage and through the appraisal and recommendation of policy approaches.

A1.11.2 Accessible Natural Greenspace

Accessible local greenspace is an important contributor to good health. It not only provides a daily experience of wildlife but contact with nature boosts people's physical and mental health. Exercise in the outdoors reduces obesity and is shown to reduce heart disease, blood pressure and diabetes – among England's most common medical problems.

Natural England has devised the Accessible Natural Greenspace Standard (ANGSt), which sets out

the minimum amount of accessible natural greenspace that any household should be within reach of. The criteria state that:

- an accessible natural greenspace of at least 2 hectares in size, no more than 300 metres (5 minutes' walk) from home;
- at least one accessible 20-hectare site within two kilometres of home;
- one accessible 100-hectare site within five kilometres of home; and
- one accessible 500-hectare site within ten kilometres of home.

A1.12 Transport

A1.12.1 Transport Infrastructure

Lincolnshire is a large and predominantly rural County; it covers 5921 square kilometres which equates to around 4.5% of England's total area. For three reasons the average population density across the County is far lower than the average for the entire country (1.21 people per hectare – 4.07 people per hectare respectively). The County features an extensive highway network at roughly 8,905 kilometres; however, the County does not contain any motorways and only 66 kilometres of dual carriageway. The full breakdown of the road network can be found below:

Table 43: Road Lengths in Lincolnshire (April 2012)

Classification	Kilometres	Miles	Percentage (%)
Trunk roads	62	38	0.7
A Roads	1,046	650	11.7
B Roads	789	490	8.9
C Roads	2,933	1,823	32.9
Unclassified	4,075	2,533	45.8
Total	8,905	5,534	Not Applicable

Source: 4th Lincolnshire Local Transport Plan 2013 and 2014 to 2022 and 2023

Additionally, the rail network in the County is limited with only 9 of the 22 largest towns featuring operational rail stations and Grantham being the only station to be located on a main inter-city network. While the rail network across the County is limited, passenger numbers have seen an increase in recent years.

The figure below shows the road, rail and port network across the County. The County is well by A-classification roads, and the majority of larger settlements are served by rail connections. There are 23 railway stations in Lincolnshire at:

- Lincoln

- Grantham
- Stamford
- Skegness
- Sleaford
- Boston
- Spalding
- Hykeham
- Gainsborough Lea Road
- Metherringham
- Ruskington
- Saxilby
- Market Rasen
- Heckington
- Wainfleet
- Swinderby
- Rauceby
- Ancaster
- Swinshead
- Gainsborough Central
- Hunnerts Bridge
- Thorpe Culvert
- Havenhouse

Figure 21: Strategic Road and Rail Network in Lincolnshire



Source: 4th Lincolnshire Local Transport Plan

A1.12.2 Road Network

According to the 4th Lincolnshire Local Transport Plan (2013) the number of lives lost on local roads in Lincolnshire has been roughly halved between 1990 – 2012. Despite this, Lincolnshire has a higher proportion of car user KSI casualties at 53% in comparison to the national proportion.

A1.12.3 Rail Network

There are two mainline railway networks that operate across Lincolnshire, East Midlands Railway and Northern Trains, both of which are important transport and commuter links in the County. Lincolnshire is also home to the community rail service known as the 'Poacher Line', this service runs for 89 kilometres between Grantham and Skegness.

A1.12.4 Freight Movement

Due to the mostly rural nature of Lincolnshire, many of the available transport links are less developed when compared to other parts of the country. The road network in particular consists primarily of single carriageway A-roads and local roads (B-roads). Additionally, Lincolnshire does not have a motorway within its boundary, and up until recently have very few stretches of dual-carriageway. A list of the County's key freight roads and their locations can be found below.

Key freight roads (as identified in the Lincolnshire Freight Strategy) in Lincolnshire include:

- The A1 dual carriageway passes through the southern corner of the county for a few miles
- The A15 is the main North-South route through the county following the old Ermine Street Roman Road from London to York
- The A16 coastal road from Grimsby provides an indirect route
- The A57 links Lincoln to Worksop, Sheffield, Manchester and Liverpool
- The A52 links Skegness and Boston with Nottingham, Derby and Stoke.
- The A17 links Newark to Sutton Bridge and Kings Lynn

Strategic sites located in close proximity to the point of use of the minerals are required to comply with sustainable transport policies. In the UK, minerals are moved over longer distances by rail or barge mainly to urban conurbations.

A1.13 Housing

A1.13.1 Introduction

The latest population trend data shows that the population in Lincolnshire is growing; therefore, the provision of adequate housing is a key issue. Not only should there be sufficient housing for the growing population, but there should also be suitable housing to meet a wide range of needs. Housing growth is important to understand in order to identify the corresponding need for local building materials (minerals) in the County.

Table 44: Local Plan Housing Needs

District and Borough	Housing needs over Local Plan periods
Central Lincolnshire 2018 - 2040 (City of Lincoln, West Lindsey and North Kesteven)	The plan sets housing need at 29,150 dwellings.
East Lindsey 2016-2031	The Plan identifies a need for 2,218 dwellings over the Plan period.
South Kesteven 2011-2036	The plan has allocated 18,846 dwellings across the plan period for completions, commitments, and proposed allocations.
South East Lincolnshire (Boston and South Holland) 2011-02036	The plan sets a housing need of at least 19,425 in the South East Lincolnshire region.

A1.14 Economy

A1.14.1 Introduction

In order to meet the needs of a growing population and economy Local Authorities must account for future growth by forecasting the requirement for economic floorspace. This is typically provided by an Employment Land Needs Assessment (ELNA) to predict and meet employment needs. The table below summarises the floorspace requirements of each Local Authority within Lincolnshire.

Table 45: Local Plan Employment Needs

District and Borough	Net new employment provision over Local Plan periods	Source of dwelling requirement
Central Lincolnshire (City of Lincoln, West Lindsey and North Kesteven)	111ha of land for employment purposes has been allocated across seven strategic employment sites, with a further 51ha anticipated at developments within sustainable urban extensions.	Central Lincolnshire Local Plan Review 2018-2040 (emerging)
East Lindsey	24ha of land for employment purposes has been allocated within Settlement Proposal DPDs for Coningsby and Tattershall (1ha), Horncastle (5ha), Spilsby (3ha) and Louth (14ha) and the Alford Neighbourhood Development Plan (1ha) for B1, B2 and B8 uses.	East Lindsey local Plan Core Strategy 2016 – 2031 (adopted)

District and Borough	Net new employment provision over Local Plan periods	Source of dwelling requirement
South Kesteven	20.2ha of land has been allocated for employment for B1, B2 and B8 uses. Additionally four strategic employment sites totalling 40.81ha and the Grantham Southern Gateway Employment Opportunity (118.19ha) have also been identified.	South Kesteven District Council Local Plan 2011-2036 (adopted)
South East Lincolnshire (Boston and South Holland)	The Plan identifies 126.9ha of employment, with 89.3ha for B-Class uses.	South East Lincolnshire Local Plan 2011-2036 (adopted)

Appendix 2: Review of Plans and Programmes

As previously mentioned in Section 3 of this Report, the SEA Directive requires the production of the following information:

‘an outline of the contents, main objectives of the plan, and relationship with other relevant plans and programmes;’ Annex 1(a); and

‘the environmental protection objectives, established at international, Community or national level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation;’ Annex 1(e).

The following tables outline a summary of the key objectives of those plans and programmes relevant to the Plan Review, ranging from the international – local level, and also those relevant for SA.

A2.1 International Plans and Programmes

Table 46: Contextual Review of International Plans and Programmes

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
European Landscape Convention 2002	The aims of this Convention are to promote landscape protection, management and planning, and to organise European co-operation on landscape issues.	In order to co-operate on matters concerning landscape conservation and protection, the Plan Review may will need to adhere to this policy to inform practices and avoid substantial harm to protected landscapes.
European Union Water Framework Directive 2000	The framework amalgamates multiple directives into one to provide the operational tool for water treatment, setting the objectives for water protection for the future. Directives included in the framework are: the Urban Wastewater Treatment Directive, providing for secondary (biological) wastewater treatment, and even more stringent treatment where necessary.	The Plan review may need to consider wastewater provisions and considerations for the EU water framework to align with the approach defined in the directive. Complying with all aspects and directives ensures that the Plan Review will not have a

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	- the Nitrates Directive, addressing water pollution by nitrates from agriculture. - a new Drinking Water Directive, reviewing the quality standards and, where necessary, tightening them (adopted November 1998), - a Directive for Integrated Pollution and Prevention Control (IPPC), adopted in 1996, addressing pollution from large industrial installations.	detrimental effect on water courses in the Plan area.
European Union Nitrates Directive 1991	The Nitrates Directive (1991) aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices.	The Plan Review may need to include Nitrate retention provisions to align with the approach defined in the directive.
European Union Environmental Noise Directive 2002	The aim of this Directive shall be to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. To that end the following actions shall be implemented progressively: a) the determination of exposure to environmental noise, through noise mapping, by methods of assessment common to the Member States; b) ensuring that information on environmental noise and its effects is made available to the public; c) adoption of action plans by the Member States, based upon noise-mapping results, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserving environmental noise quality where it is good. This Directive shall also aim at providing a basis for developing Community measures to reduce noise emitted by the major sources, in	The Plan Review may need to consider this strategy to noise pollution when formulating policy for the Plan area.

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery.	
European Union Floods Directive 2007	The purpose of this Directive is to establish a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity associated with floods in the Community.	Flood risk policy should be informed by the approach within the EU Floods Directive in order to align with European practices for flood prevention and management.
European Union Air Quality Directive 2008 including previous versions.	Council Directive 96/62/EC on ambient air quality assessment and management. Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air. Directive 2000/69/EC of the European Parliament and of the Council relating to limit values for benzene and carbon monoxide in ambient air. Directive 2002/3/EC of the European Parliament and of the Council relating to ozone in ambient air. This new Directive includes the following key elements: • that most of existing legislation be merged into a single directive (except for the fourth daughter directive) with no change to existing air quality objectives* • New air quality objectives for PM_{2.5} (fine particles) including the limit value and exposure related objectives – exposure concentration obligation and exposure reduction target • the possibility to discount natural sources of pollution when assessing compliance against limit values • possibility for time extensions of three years (PM₁₀) or up to five years (NO₂, benzene) for complying with limit values,	Air quality management principles relating to the range of pollutant gases outlines within the EU Air Quality Directive are a required consideration for the Plan to counteract emissions within the Plan area. The Plan Review may need to adopt mitigation approaches to minimise the impact of operations, increased energy consumption and road usage in the locality.

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	based on conditions and the assessment by the European Commission. * Framework Directive 96/62/EC, 1-3 daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC, and Decision on Exchange of Information 97/101/EC.	
European Union Directive on the Conservation of Wild Birds 2009	This Directive relates to the conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies. It covers the protection, management and control of these species and lays down rules for their exploitation. It shall apply to birds, their eggs, nests and habitats.	Conservation of bird species must be incorporated in ecological considerations at the Plan level. The Plan Review, in accordance with this EU directive, should evaluate the impact on bird habitats through a Habitats Regulations Assessment.
European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992	The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies.	Conservation of habitats must be incorporated in ecological considerations at the Plan level. The Plan Review, in accordance with this EU directive, should evaluate the impact on bird habitats through a Habitats Regulations Assessment.
European Union Biodiversity Strategy to 2030	This strategy aims to conserve biodiversity within Europe in an attempt to achieve the following targets: 2030 headline targets: • Legally protect a minimum of 30% of the EU's land area and 30% of the EU's sea area and integrate ecological corridors, as part of a true Trans-European Nature Network. • Strictly protect at least a third of the EU's protected areas, including all remaining EU primary and old-growth forests. • Effectively manage all protected areas, defining clear conservation objectives and	The Plan Review should consider the impact of operations and the Plan as a whole on the environment and biodiversity.

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	measures, and monitoring them appropriately. 2050 vision • By 2050, all of the world's ecosystems are restored, resilient, and adequately protected. The world should commit to the net-gain principle to give nature back more than it takes. The world should commit to no human-induced extinction of species, at minimum where avoidable.	
United Nations Kyoto Protocol	This protocol aims to Implement and, or further elaborate policies and measures for member states in accordance with its national circumstances, such as: • Enhancement of energy efficiency in relevant sectors of the national economy; • Protection and enhancement of sinks and reservoirs of greenhouse gases not controlled by the Montreal Protocol, taking into account its commitments under relevant international environmental agreements; promotion of sustainable forest management practices, afforestation and reforestation; • Promotion of sustainable forms of agriculture in light of climate change considerations; • Research on, and promotion, development and increased use of, new and renewable forms of energy, of carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies; • Progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and application of market instruments;	The Plan Review should attempt to ensure a low carbon and low emissions ethos. Policy that accommodates new technologies, techniques or materials should be considered in the Plan Review where appropriate.

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	• Encouragement of appropriate reforms in relevant sectors aimed at promoting policies and measures which limit or reduce emissions of greenhouse gases not controlled by the Montreal Protocol; • Measures to limit and, or reduce emissions of greenhouse gases not controlled by the Montreal Protocol in the transport sector; • Limitation and, or reduction of methane emissions through recovery and use in waste management, as well as in the production, transport and distribution of energy	
World Commission on Environment and Development 'Our Common Future' 1987	This report aims are: • to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond; to recommend ways concern for the environment may be translated into greater co-operation among developing countries and between countries at different stages of economic and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development; • to consider ways and means by which the international community can deal more effectively with environment concerns; and • to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long-term agenda for action during the coming decades, and aspirational goals for the world community.	The Plan Review should seek to minimise environmental impacts through policy to promote more efficient and carbon neutral techniques.

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
The World Summit on Sustainable Development Johannesburg Summit 2002	The Summit sought to address social, environmental and economic with particular focus on the issues facing some of the most deprived people across the world. It aimed to: • halve the proportion of the world's population that lives on less than \$1 a day; • halve the number of people living without safe drinking water or basic sanitation; and • reduce mortality rates for infants and children under five by two thirds, and maternal mortality by three quarters; • Other provisions address a comprehensive range of environmental and development issues, such as climate change, energy, agriculture, trade, African development, and small island States. The Implementation Plan calls for a substantial increase in use of renewable sources of energy "with a sense of urgency". Although it sets no specific targets; implementation of a new global system for classification and labelling of chemicals was discussed in an attempt to restore depleted fish stocks.	Issues surrounding climate change and renewable energy have significant implications for the Plan area. The Plan Review should strive to ensure low carbon outcomes and reduce environmental degradation through responsible practices.
Environmental Assessment of Plans and Programmes Regulations (SEA Regulations)	These regulations transpose the requirements of the SEA Directive (2001/42/EC) into national law. The SEA Directive sets out the requirement for an environmental assessment to be undertaken when preparing certain plans and programmes and also details which types of plans and programmes are likely to be subject to SEA. The regulations also set out procedures for preparing the environmental report and consultation.	By assessing impacts of Policy amendments within the plan area and beyond, and investigating alternative approaches, development can meet the needs of the Plan area while also positively impacting on the economy, society and environment where possible.
The Conservation of Habitats and Species Regulations, 2019	These regulations transpose the Habitats Directive into national law, and updates and consolidates all the amendments to the Regulations since they were first made in 1994.	The Minerals and Waste Local Plan must ensure the protection of sites of European Significance in

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	They set out protection and registry of European sites, including SACs and SPAs classified under the Birds Directive. They also make special provisions for the protection of European marine sites and the preservation of protected species.	relation to their flora and fauna and enter into the agreement that compensatory measures will be required where damage may occur through development or the carrying out of extraction.
European Union, The Industrial Emissions Directive, 2010	This directive relates to the regulation of pollutant emissions from industrial installations. The primary aim is to provide a high level of protection to both human health and the environment as a whole by reducing harmful emissions. The IED is based upon five pillars: 1) Integrated Approach 2) Best Available Techniques (BAT) 3) Flexibility 4) Inspections 5) Public Participation	Pollutant emissions and industrial installations management principles relating to the harmful emissions within the EU IED are a required consideration for the Plan to counteract harmful emissions within the Plan area. The Plan Review may need to adopt mitigation approaches to minimise the emissions impacts of minerals and waste installations
European Convention on the Protection of the Archaeological Heritage (Valletta, 1992)	Aims to protect archaeological heritage as a source of European interest and also for historical or scientific study.	The Plan Review should take into account historically important landscape features and protect these from any negative impacts of mineral extraction.
European Union Mining Waste Directive, 2006	The aim of this directive is to both prevent and reduce the adverse effects on the environment arising from the management of mining waste. While some of the waste from mining activities is inert, some may also contain large quantities of dangerous substances, such as heavy metals.	The Plan Review should seek to minimise environmental impacts through policy to reduce adverse effects arising from the management of mining waste.
European Union Groundwater Directive, 2006	The Groundwater Directives purpose is to set groundwater quality standards and introduce measures to prevent or limit pollutants in groundwater.	Land use planning can have negative impacts on groundwaters.

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	The directive also complements the Water Framework Directive (WFD). It requires: • groundwater quality standards to be established by the end of 2008; • pollution trend studies to be carried out by using existing data and data which is mandatory by the WFD (referred to as "baseline level" data obtained in 2007-2008); • pollution trends to be reversed so that environmental objectives are achieved by 2015 by using the measures set out in the WFD; • measures to prevent or limit inputs of pollutants into groundwater to be operational so that WFD environmental objectives can be achieved by 2015; • reviews of technical provisions of the directive to be carried out in 2013 and every six years thereafter; • compliance with good chemical status criteria (based on EU standards of nitrates and pesticides and on threshold values established by Member States).	Groundwaters may have to be a consideration in the review of Plan policy.
European Waste Framework Directive, 2008	This directive sets the basic waste management principles requiring that waste is managed: • without endangering human health and harming the environment • without risk to water, air, soil, plants or animals • without causing a nuisance through noise or odours • and without adversely affecting the countryside or places of special interest The foundation of this framework is the five-step waste hierarchy: Prevention – Preparing for re-use – Recycling – Recovery – Disposal.	The Plan review may need to consider waste management practices for the EU waste framework to align with the approach defined in the directive. Complying with all aspects and directives ensures that the Plan Review will not have a detrimental effect in the Plan area.
European Union Landfill Directive, 1999	The primary aim of this directive is to limit the amount of waste sent to landfill to the necessary minimum.	The Plan review will need to ensure that waste generated within the county is

International Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
		effectively managed to keep landfill waste at an acceptable level.
European Union Soil Strategy for 2030, 2021	The primary aims of this strategy are to provide a framework to be used in the protection and restoration of soils, and to ensure they are used sustainably. The strategy extends to 2050 with its main aims listed below: • All EU soil ecosystems are healthy and more resilient and can therefore continue to provide their crucial services • There is no net land tank and soil pollution is reduced to levels that are no longer harmful to people's health or ecosystems • Protecting soils, managing them sustainably and restoring degraded soils is a common standard.	The Plan Review should seek to minimise environmental impacts through policy to promote the protection, restoration and sustainable use of soils.
Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, UNESCO, 1971	This convention acts as an international mechanism for the protection of globally important wetland sites. It achieves this by following three 'pillars of activity found below: 1. The designation of wetlands of importance as Ramsar Sites; 2. The promotion of wise use of all wetlands in the territory of each country; and 3. International cooperation with other countries to further the wise use of wetlands and their resources. The UK's first Ramsar site was designated in 1976. The Ramsar designations are generally underpinned through prior notification of these areas as SSSIs.	The Plan Review should seek to minimise environmental impacts through policy to promote the conservation of wetland habitats.

A2.2 National Plans and Programmes

Table 47: Contextual Review of National Plans and Programmes

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
The Conservation of Habitats and Species Regulations, 2019	These regulations transpose the Habitats Directive into national law, and updates and consolidates all the amendments to the Regulations since they were first made in 1994. They set out protection and registry of European sites, including SACs and SPAs classified under the Birds Directive. They also make special provisions for the protection of European marine sites and the protection of protected species.	The Plan Review must ensure the protection of sites of European Significance in relation to their flora and fauna and enter into the agreement that compensatory measures will be required where damage may occur through development or the carrying out of extraction.
Safeguarding Our Soils: A Strategy for England (2009)	By 2030, the strategy aims to have all of England's soils to be managed sustainably and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations. • agricultural soils will be better managed and threats to them will be addressed; • soils will play a greater role in the fight against climate change and in helping us to manage its impacts; • soils in urban areas will be valued during development, and construction practices will ensure vital soil functions can be maintained; pollution of our soils is prevented, and our historic legacy of contaminated land is being dealt with.	Soil quality has a key role in water quality, climate change issues and the historic legacy and health of the environment. The Plan Review should attempt to retain and protect soil quality through construction techniques. Through aligning with the strategy, minerals development can occur responsibly without causing soil degradation.
National Planning Policy for Waste (NPPW, 2014)	Sets out detailed waste planning policies – using a proportionate evidence base, identifying need for waste management facilities, identifying suitable sites and areas, determining planning applications, monitoring and reporting.	Plan policies need to be developed in line with the NPPW. The SA framework, where applicable, needs to be relevant and include objectives to reflecting

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
		overall direction of the NPPW.
National and Regional Guidelines for Aggregates Provision in England 2005 - 2020	Sets out national and regional guidelines for aggregates provisions in England for the period 2005-2020 inclusive. It should be noted that the NPPF provides up to- date guidance on minerals planning and provision of aggregates.	Give due consideration to the guidelines in the identification of provision rates for the supply of aggregates and through the SA framework.
Countryside and Rights of Way Act 2000	Further information on Rights of Way in relation to nature conservation with wildlife protection, SSSIs and biological diversity amongst other elements of the environment, including regulations to restrict the impacts of vehicles on the environment.	The Plan Review should seek the protection of these designations and non-designated elements of the environment through policy.
Future Water: The Governments water strategy for England, 2008	The vision of the strategy by 2030 is as follows: • 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 water charge; • cut greenhouse gas emissions; and • embedded continuous adaptation to climate change and other pressures across the water industry and water users	There is a need to give due consideration to the aims of this Act in devising the SA framework.
Flood and Water Management Act, 2010	The Act, which applies to England and Wales, aims to create a simpler and more effective means of managing the risk of flood and coastal erosion. The Act also aims to help improve the sustainability of our water resources and protect against potential droughts.	There is a need to give due consideration to the aims of this Act in devising the SA framework.

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	The Act has a significant component which addresses groundwater flooding.	
The Environment Agency's approach to groundwater protection, 2018	This document sets out the Environment Agency's (EA) aims and objectives for groundwater, their technical approach to its management and protection, the tools they use to do their work and the main policies and approach to the application of legislation. The main aims are: • Where possible, the EA will take a risk-based approach in the regulation of activities that may have impacts on groundwater; • Where developments will have serious or irreversible impacts the EA will adopt the precautionary principle; • The EA will encourage the consideration of the groundwater protection hierarchy, the aim is to avoid the pollution of the most sensitive locations; • Expect developers to assess groundwater throughout all stages of development; • Developers are expected to provide adequate information when submitting their proposals, this is to ensure the assessment of impacts are thorough; • Compliance with existing guidance; • Appropriate engineering standards are expected where the building and decommissioning of structures takes place; and • Where groundwater is affected any new development, abstraction or discharge will seek to restore or improve groundwater.	Land use planning can have negative impacts on groundwaters. Groundwaters may have to be a consideration in the review of Plan policy.
Planning (Listed Buildings and Conservation Areas) Act, 1990	The Planning (Listed Buildings and Conservation Areas) Act is a UK Act of Parliament introduced in 1990 that changed laws relating to the granting of planning permission for building works, with a particular focus on listed buildings and conservation areas. It created special controls for the demolition, alteration or	Provides guidance on the preparation of Plan Review requirements and accompanying SA.

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	extension of buildings, objects or structures of particular architectural or historic interest, as well as conservation areas. Buildings may be listed for a number of reasons: • Architectural interest (such as design, decoration or craftsmanship). • Historic interest (for example, if the building is representative of a particular type). • Historic association (association with nationally important people or events). • Group value (part of a larger ensemble).	
Ancient Monuments and Archaeological Areas Act 1979	The Ancient Monuments and Archaeological Areas Act 1979 or AMAAA is a law passed by the UK government, legislating to protect the archaeological heritage of England and Wales and Scotland. Section 61(12) defines sites that warrant protection due to their being of national importance as 'ancient monuments'. These can be either scheduled monuments or "any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it".	Provides guidance on the preparation of Plan Review requirements and accompanying SA.
The Government's Statement on the Historic Environment for England, 2010	The Government's Statement on the Historic Environment further emphasises the commitment to valuing the historic environment found across England. A number of strategic aims are provided to guide the future treatment of the Historic Environment: • Strategic Leadership • Protective Framework • Local Capacity • Public Involvement • Direct Ownership • Sustainable	Provides guidance on the preparation of Plan Review requirements and accompanying SA. Ensuring that the Plan Review continues to account for the Historic Environment found in Lincolnshire.
National Heritage Protection Plan Framework, 2012	Described as the 'business plan for the historic environment', the National Heritage Protection Plan provides a framework with which heritage	Provides guidance on the preparation of Plan Review requirements and

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	protection can be instated as a clear set of priorities, these priorities are as follows: • Ensure that England's Historic Environment is not needlessly at risk of damage, erosion, or loss. • Ensure that England's Historic Environment is experienced, understood and enjoyed by local communities. • Ensure that England's Historic Environment contributes to sustainable and distinctive places to live and work; and • Ensure that England's Historic Environment helps deliver positive and sustainable economic growth.	accompanying SA. Ensuring that the Plan Review continues to account for the Historic Environment found in Lincolnshire.
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)	This Air Quality Strategy sets out air quality objectives and policy options to further improve air quality in the UK from today into the long term. As well as direct benefits to public health, these options are intended to provide important benefits to quality of life and help to protect our environment.	Air quality requires protection from the strain of further development and related operations associated with mineral activities such as vehicles producing pollutants. Considerations for air quality should be present within the Plan Review, with reduction and mitigation measures present where necessary.
(National) Planning Practice Guidance	This web-based resource provides guidance to support the National Planning Policy Framework and its application in practice. It is also easy to link easily between the National Planning Policy Framework and relevant planning practice guidance, as well as between different categories of guidance.	Provides guidance on the preparation of Plan Review requirements and accompanying SA.
National Planning Policy Framework (2021)	This framework sets out the Government's planning policies for England and how these are expected to be applied. It replaces all Planning Policy Statements and Planning Policy Guidance.	The Plan Review must be in conformity with this national planning document in order to ensure development is

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	The framework seeks to contribute to the achievement of sustainable development by pursuing economic, environmental and social gains jointly and simultaneously through the planning system. It defines planning as having: • an economic role – contributing to building a strong, responsive and competitive economy; • a social role – supporting strong, vibrant and healthy communities; and • an environmental role – contributing to protecting and enhancing our natural, built and historic environment. The framework sets out 12 core land-use planning principles that Neighbourhood Planning authorities should follow and provides guidance on preparing Local and Neighbourhood Plans and on determining planning applications. The framework also describes the role of planning in delivering sustainable development under 14 themes. These are: • Building a strong, competitive economy • Ensuring the vitality of town centres • Supporting a prosperous rural economy • Promoting sustainable transport • Supporting high quality communications infrastructure • Delivering a wide choice of high-quality homes • Requiring good design • Promoting healthy communities • Protecting Green Belt land • Meeting the challenge of climate change, flooding and coastal change • Conserving and enhancing the natural environment • Conserving and enhancing the historic environment • Facilitating the sustainable use of minerals	approached sustainably. Therefore, the Plan Review should be consistent with the principles and policies set out in this Framework.

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	A key part of the NPPF is the presumption in favour of sustainable development which is relevant to both plan making and decision making.	
Natural Environment and Rural Communities Act, 2006	The Natural Environment and Rural Communities Act 2006 is a law passed by the UK government. It instated Natural England as a government body tasked with the management of the natural environment and rural communities, ensuring that the natural environment will be conserved, enhanced and managed for the benefit of the present and future. More specifically making provision in connection with wildlife, sites of special scientific interest, National Parks and Broads.	Provides guidance on the preparation of Plan Review requirements and accompanying SA.
Biodiversity 2020: A strategy for England's wildlife and ecosystem services, 2011	The strategy sets out a series of outcomes to achieve by 2020 and an overall 2050 vision for England. The vision is as follows: "By 2050 our land and seas will be rich in wildlife, our biodiversity will be valued, conserved, restored, managed sustainably and be more resilient and able to adapt to change, providing essential services and delivering benefits for everyone". Four main outcomes were identified to achieve the key 2020 missions these related to: • Habitats and ecosystems on land • Marine habitats, ecosystems, and fisheries • Species • People	The Plan Review must ensure the protection of sites of ecological importance in relation to their flora and fauna and enter into the agreement that compensatory measures will be required where damage may occur through development or the carrying out of extraction.
UK Geodiversity Action Plan: A framework for enhancing the importance and role of geodiversity	The strategy's main purpose is to promote action to conserve and enhance diverse geological heritage of the UK whilst promoting and managing the sustainable use of its geodiversity resources. Six themes are used to achieve this aim and are as follows: 1. Furthering our understanding of geodiversity 2. Influencing planning policy, legislation and development design.	This plan forms part of the evidence base behind the Plan Review 2022 and raises targets and actions for the geodiversity found across the UK.

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	3. Gathering and maintaining information on our geodiversity. 4. Conserving and managing our geodiversity. 5. Inspiring people to value and care for our geodiversity. 6. Sustaining resources for our geodiversity.	
National Flood and Coastal Erosion Risk Management Strategy for England, 2020	The National flood and Coastal Erosion Risk Management Strategy was developed as a result of the Flood and Water Management Act 2010. The strategy's framework guides practitioners' operational activities and decision making alongside the guidance set within government policy. The strategy has 3 long-term ambitions: 1. Climate resilient places 2. Today's growth and infrastructure resilient in tomorrow's climate 3. A nation ready to respond and adapt to flooding and coastal change.	There is a need to give due consideration to the aims of this strategy in devising the SA framework.
Air Pollution: Action in a Changing Climate, 2010	This Strategy sets out air quality objectives and options to further improve air quality in the UK from today into the long term. As well as direct benefits to public health, these options are intended to provide important benefits to quality of life and help to protect our environment.	Air quality requires protection from the strain of further development and related operations associated with mineral activities such as vehicles producing pollutants. Considerations for air quality should be present within the Plan Review, with reduction and mitigation measures present where necessary.
Climate Change Act (2050 Target amendment) (2008) Order 2019	This act sets targets for the reduction of greenhouse gas emission by 2050 and also provides the framework with which the UK can achieve this. It is the basis for the UK's approach to addressing climate change. Additionally, the act launched the Committee on Climate Change to monitor the emissions and ensure they are	Pollutant emissions and industrial installations management principles relating to the harmful emissions are a required consideration for the Plan to counteract harmful

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	independently assessed. The main aim of this is to reduce greenhouse gas emissions to the 1990 levels (net zero) by 2050.	emissions within the Plan area. The Plan Review may need to adopt mitigation approaches to minimise the emissions impacts of minerals and waste installations.
The Waste (Circular Economy) (Amendments) Regulations, 2020	The Waste (Circular Economy) (Amendments) Regulations amend a number of other regulations to transpose the EU's 2020 Circular Economy Package. These changes aim to do the following: • Prevent waste generation • Ensure waste is prepared for re-use, recycling or other recovery • Re-usable or recyclable waste should not be incinerated or landfilled. • Hazardous waste to be separated where possible. • Record levels of hazardous waste treatment.	The Plan review will need to ensure that waste generated within the County is effectively managed to keep landfill and incinerated waste at an acceptable level.
Waste Management Plan for England, 2021	The Waste Management Plan for England provides an overview of waste management taking place across the Country in order to fulfil the requirements of the Waste (England and Wales) Regulations 2011.	The Plan review will need to ensure that waste generated within the County is effectively managed to keep landfill and incinerated waste at an acceptable level.
The Hazardous Waste (England and Wales) Regulations, 2005	The Hazardous Waste Regulations provides the framework for the way in which Hazardous Waste is controlled and tracked. Producers of hazardous waste should be recorded alongside any movements.	The Plan review will need to ensure that hazardous waste generated within the County is effectively managed to keep the amount of waste at an acceptable level.
Household Waste Recycling Act, 2003	The Household Waste Recycling Act seeks to make further provisions regarding the collection, composting and recycling of household waste; and for connected purposes.	The Plan review will need to ensure that waste generated within the County is effectively managed to keep landfill

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
		and incinerated waste at an acceptable level.
Environment Act, 2021	The Environment Act provides targets, plans and policies for improving the natural environment, it seeks to deliver the following: • Long-term targets to improve air quality, biodiversity, water and waste reduction and resource efficiency • A target on ambient PM2.5 concentrations • A target to halt the decline of nature by 2030 • Environmental Improvement Plans, including interim targets • A cycle of environmental monitoring and reporting • Environmental Principles embedded in domestic policy making • Office for Environmental Protection to uphold environmental law	This act forms part of the evidence base behind the Plan Review 2022 and raises targets and actions for the environment across the UK.
Flood Risk Regulations, 2009	The Flood Risk Regulations set out the requirements for preliminary flood risk assessments, hazard maps, flood risk maps and flood risk management plans. Additionally, the regulation sets out the duty of co-operation between the Environment Agency and Lead Local Flood Authority.	There is a need to give due consideration to the requirements of these Regulations in devising the SA framework.
A Green Future: Our 25 Year Plan to Improve the Environment, Defra, 2018	This plan has a number of aims which include delivering cleaner air and water, protecting threatened species and providing richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first.	There is a need to give due consideration to the aims of this plan in devising the SA framework.
Net Zero Strategy: Build Back Greener, 2021	This strategy outlines the UK's commitment to meeting net zero carbon emissions by 2050. The document contains policies and proposals to ensure that the UK remains on track from the carbon budgets, the Nationally Determined Contribution and also sets out the vision for a decarbonised economy in 2050.	This strategy forms part of the evidence base behind the Plan Review 2022 and raises policies and proposals for net-zero emissions across the UK.

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
Clean Air Strategy, 2019	The Clean Air Strategy sets out the steps that are to be taken to address all sources of air pollution, making air healthier to breathe, protecting nature and boosting the economy.	This strategy forms part of the evidence base behind the Plan Review 2022 and outlines the comprehensive action required across all parts of government and society.
Land Use: Reducing emissions and preparing for climate change, Climate Change Committee, 2018	This report assesses the role of land use change in meeting climate change mitigation and adaptation objectives. The Key findings are as follows: • Climate change impacts are already altering the land's use, while the services provided by the natural environment are being degraded • Land is a critical natural resource, but past policies governing the use of UK land have been fragmented and incomplete • New land-use policy must promote radically different uses of UK land • Alternative uses of land can be economic for farmers and land managers, but Government must provide help for them to transition	This report forms part of the evidence base behind the Plan Review 2022 and outlines the role of land use change in climate change mitigation.
National Quality Mark Scheme for Land Contamination Management, 2017	This scheme has been developed by the National Brownfield Forum to provide visible identification to documents that have been checked by a qualified individual. Providing increased confidence and improved quality in submissions relating to previously used land.	This report forms part of the evidence base behind the Plan Review 2022 and outlines the benefits of reviewing schemes relating to previously used land.
Our Waste, Our Resources: A Strategy for England, 2018	This strategy outlines the government's commitment to minimising waste, improving resource efficiency and progressing towards a circular economy. Additionally, the strategy seeks to reduce environmental impacts by reducing and managing waste safely and carefully, and by tackling waste crime.	The Plan Review should seek to minimise waste and environmental impacts through policy to progress towards a circular economy.

National Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
UK Climate Change Risk Assessment, Committee on Climate Change, 2022	The risk assessment is a requirement of the Climate Change Act 2008. The independent assessment	This assessment forms part of the evidence base behind the Plan Review 2022 and contains findings related to Climate Change in the UK.
Water Abstraction Plan, Defra, 2011	This plan sets out the government's plans for the reformation of water abstraction management. The reformation seeks to both protect the environment and improve access to water.	This report forms part of the evidence base behind the Plan Review 2022 and outlines the government's plan to reform water abstraction.
Meeting our Future Water Needs: A National Framework for Water Resources, 2020	This framework explores the long-term water needs of England to ensure a resilient and improved water system for the future.	The Plan Review should seek to minimise waste water through policy guidance.
National Flood and Coastal Erosion Risk Management Strategy, 2020	This strategy is a requirement of the Flood and Water Management Act 2010. The overall strategy describes what is required by all risk management authorities (RMAs) involved with the management of flood and coastal erosion risk for the benefit of both people and places.	The Plan Review should seek to minimise flood and coastal erosion risks through policy guidance.

A2.3 County and Regional Plans and Programmes

Table 48: Contextual Review of County and Regional Plans and Programmes

County and Regional Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to the Plan Review and SA
Lincolnshire Minerals and Waste Local Plan (2016)	Adopted in June 2016, the Plan provides planning policies for minerals and waste development in Lincolnshire until 2031 and identifies future sites for mineral development. The Plan includes the Council's key principles to guide the future winning and working of minerals and the form of waste management	This Plan is subject to a 5-year review, to which this SA Scoping Report is a statutory requirement. It contains the policies that are subject to review and amendment where necessary.

County and Regional Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to the Plan Review and SA
	development in the County. The Lincolnshire Minerals and Waste Local Plan includes: - the Core Strategy and, which sets out the long-term direction for minerals and waste management development and a plan to deliver this; - core strategy policies, development management policies and restoration policies which planning applications for minerals and waste development are considered against. - Site Locations document: this was adopted at a later date (December 2017) and allocates specific sites for winning and working of minerals and for waste management, and more general areas for waste management. It also safeguards allocated sites from other forms of development.	
Lincolnshire Local Aggregate Assessment (LAA) (2021)	The National Planning Policy Framework (NPPF) requires Lincolnshire County Council, as the Minerals Planning Authority (MPA) to produce a Local Aggregate Assessment (LAA) every year. The LAA monitors the current supply of minerals and helps to determine the amount required in the future. This ensures the production of a steady and adequate supply of minerals throughout the period covered by the Minerals Local Plan.	The LAA provides baseline to inform the Plan Review, specifically the need for any additional extraction sites and in some part the successfulness of adopted 2016 Minerals and Waste Local Plan policies. The LAA also provides the baseline position for assessing effects in the SA.
Lincolnshire Waste Needs Assessment (WNA) (2021)	The WNA determines whether a predicted need for additional waste management capacity exists in Lincolnshire by quantifying and characterising the principal waste streams arising and producing forecasts and estimates of the amount of waste that needs to be managed, whilst taking into account the potential contribution of the exiting available	The WNA provides baseline to inform the Plan Review, specifically the need for any additional waste management facilities and in some part the successfulness of adopted 2016 Minerals and Waste Local Plan policies. The

County and Regional Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to the Plan Review and SA
	waste management capacity within Lincolnshire.	WNA also provides the baseline position for assessing effects in the SA.
The Review of the Lincolnshire Minerals and Waste Local Plan (LMWLP) (2021)	Lincolnshire County Council (LCC) as the Minerals Planning Authority (MPA) and the Waste Planning Authority (WPA) are statutorily required to review adopted development plans every five years from adoption. The five year review of the LMWLP draws upon the findings of Authority Monitoring Reports (AMRs), and has monitored and assessed: the effectiveness of adopted minerals and waste planning policies (in this instance the adopted LMWLP); The Review enables LCC to address any shortcomings in policy effectiveness, including waste capacity gap analysis and minerals sales.	The Review corresponds to the principal background document to which any amendments to the LMWLP will be justified and evidenced. This justification is critical to the SA, and the review also establishes a baseline for a business as usual scenario against which any changes to policy from the Plan Review can be assessed in the SA.
Lincolnshire Minerals and Waste Development Scheme (LMWDS) (2021)	Section 16 of the Planning and Compulsory Purchase Act 2004 (as amended) outlines the need for Lincolnshire County Council, as the Minerals and Waste Planning Authority to produce a Minerals and Waste Development Scheme. The LMWDS sets out: - the main stages in preparation of the updated DPDs; - details of the individual DPDs that make up the current adopted LMWLP - the procedures for the monitoring and review of the LMWLP; and - the programme for the preparation of a new, updated LMWLP	The development scheme outlines the timetable for the emerging Plan review. The SA is undertaken at key stages of the plans preparation, ensuring that both documents are undertaken in tandem ensures that the best result is produced for both the SA and Plan Review.
Lincolnshire Flood Risk and Water Management Strategy 2019-2050	Lincolnshire CC is the Lead Local Flood Authority (LLFA), as a result, they are accountable for implementing and monitoring a local flood risk and management strategy since 2010. The strategies' purpose is to manage flood risk in the County to reduce the impact on people, businesses and the Environment. This is achieved through legislation outlining; proposed measures, timelines for	The strategy forms part of the evidence base behind the Plan Review 2022 by providing detailed information related to the impacts of flooding across the county. This information is useful in the identification of

County and Regional Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to the Plan Review and SA
	implementation, cost and benefit analysis, assessment, and regular strategy reviews.	‘reasonable’ alternatives within the SA that are relevant to the scope of the Plan Review.
Greater Lincolnshire Geodiversity Strategy	The strategy’s main purpose is to promote action to conserve and enhance diverse geological heritage of Greater Lincolnshire whilst promoting and managing the sustainable use of its geodiversity resources. A key part of the strategy is the survey and designation of Local Geological Sites.	This study forms part of the evidence base behind the Plan Review 2022 and raises targets and actions for the geodiversity found within Lincolnshire. This includes published policy documents such as the LMWLP.
The Lincolnshire County Council Corporate Plan	This plan underpins Lincolnshire’s ‘One Council’ approach, ensuring county wide services are working towards shared goals. Key priorities have been identified for Lincolnshire and the council, with the hope that people and communities will have: • High aspirations • The opportunity to enjoy life to the full • Thriving environments • Good-value council services The County Council are committing to the following in order to achieve the above: • Being customer focussed • Working collaboratively • Connecting our communities • Advocating for Lincolnshire • Making your money go further • Working creatively	This Plan forms sets out the commitment to improving Lincolnshire and its services. This includes areas directly affected by Minerals and Waste activities such as; the economy, the environment, highways and health.
The Lincolnshire County Council Green Master Plan	This Plan covers the period 2021 – 2030 and seeks to address three areas related to the reduction of carbon and impacts on the environment. These guiding principles are at the centre of the plan, these are: • Do not waste anything • Consider wider opportunities • Take responsibility and pride	Pollutant emissions and industrial installation management principles relating to the harmful emissions are a required consideration for the Plan. This Master Plan therefore justifies

County and Regional Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to the Plan Review and SA
	The Masterplan is to be supported by a number of emerging documents in order to help it to fulfil the net-zero emission target of 2050. This includes the initial action plan 2020-2025 which outlines a number of upcoming projects that include – LED streetlights, electric vehicles and solar panel installation among others.	approaches in the LMWLP and informs SA.
The 4th Lincolnshire Local Transport Plan 2013, 2014 - 2022, 2023 (2013)	This plan emerged as a result of the Transport Act (2000), the 4 th edition of this plan covers a ten year period from 2013 and builds upon the strategies and policies of the previous three Local Transport Plans. The Plan seeks to address three key challenges across Lincolnshire, these being: • Supporting growth and local economy, • Improving access to employment, training and key services, and • Contributing to a healthier community.	This Plan informs the Plan Review and the SA, including targets and actions for the transport network found within Lincolnshire. This includes specific concerns related to the movement of minerals.
The Joint Municipal Waste Strategy for Lincolnshire (2019)	This strategy establishes how the members of the Lincolnshire Waste Partnership will work together to protect the environment by delivering sustainable waste management services through the establishment of waste management best practices. The overall vision for the strategy is as follows: • To seek the best environment option to provide innovative, customer-friendly waste management solutions that give value for money to Lincolnshire.	This Strategy informs the Plan Review and the SA. It contains actions for waste management to fulfil strategic objectives for Lincolnshire.
Draft Drought Plan 2022, Anglia Water, March 2021	The Draft Drought Plan sets out Anglian Waters approach to managing water resources during drought periods to protect both public water supply and minimise environmental impacts. The Plan is split into 3 parts: 1. Drought Plan frameworks, regional overview and technical background 2. Drought Plan monitoring, triggers and forecasting Drought Plan response actions	The Plan Review should seek to ensure water resources are used sustainably across minerals and waste sites through policy guidance.

County and Regional Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to the Plan Review and SA
The Emerging Water Resources Regional Plan for Eastern England, Water Resources East – Safeguarding a sustainable supply of water	The Water Resources Management Plan (WRMP) is being developed by Water Resources East (WRE) to ensure that water resources are both sustainable and resilient for the next 50 years and beyond. There are four key components of the plan: 1. Demand Management 2. Large Infrastructure Options 3. Local non-water company and smaller water company infrastructure 4. Supporting, facilitating or overseeing water innovations. The process is proposed to be an iterative one with the plan being updated and modified incrementally to 2050 and beyond.	The Plan Review should seek to ensure water resources are used sustainably across minerals and waste sites through policy guidance.
Anglian River Basin District Draft Flood Risk Management Plan 2021-27	Flood Risk Management Plans are strategic plans that set out how to manage flood risk in nationally identified flood risk areas (FRAs) for the period 2021-2027, they are statutory plans required by the Flood Risk Regulations 2009.	The plan review should seek to reduce flood risk arising from minerals and waste allocations through policy guidance.
Humber River Basin District Draft Flood Risk Management Plan 2021-27	Flood Risk Management Plans are strategic plans that set out how to manage flood risk in nationally identified flood risk areas (FRAs) for the period 2021-2027, they are statutory plans required by the Flood Risk Regulations 2009.	The plan review should seek to reduce flood risk arising from minerals and waste allocations through policy guidance.

A2.4 District Level Plans and Programmes

Table 49: Contextual Review of District Level Plans and Programmes

District Level Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
Central Lincolnshire Local Plan Review 2018-2040 (emerging)	The Plan sets housing need at 29,150 dwellings (between 1,060-1,325 dwellings per year). 111ha of land for employment purposes has been allocated across seven strategic employment sites, with a further 51ha	Understanding the implications of housing and employment growth over Local Plan period (between 15-20 years as stipulated in individual

District Level Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
	anticipated at developments within sustainable urban extensions.	LPA Plans) is important to indicate forecasts in aggregate demand and waste requirements across the County. This can in turn assist in determining the need for amendment to Plan policy.
East Lindsey Local Plan Core Strategy 2016 – 2031 (adopted)	The Plan sets housing need at 2218 dwellings over the 2017-2031 period. A total of 24ha of land for employment purposes has been allocated within Settlement Proposal DPDs for Coningsby and Tattershall (1ha), Horncastle (5ha), Spilsby (3ha) and Louth (14ha) and the Alford Neighbourhood Development Plan (1ha) for B1, B2 and B8 uses.	Understanding the implications of housing and employment growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand and waste requirements across the County. This can in turn assist in determining the need for amendment to Plan policy.
South Kesteven District Council Local Plan 2011 – 2036 (adopted)	The Plans Strategic Housing Market Assessment established an OAN of 16.125 dwellings for 2011-2036. The Plan allocated 18.846 across this period for completions, commitments and proposed allocations. A total of 20.2ha of land has been allocated for employment for B1, B2 and B8 uses. Additionally four strategic employment sites totalling 40.81ha and the Grantham Southern Gateway Employment Opportunity (118.19ha) have also been identified.	Understanding the implications of housing and employment growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand and waste requirements across the County. This can in turn assist in determining the need for amendment to Plan policy.

District Level Plans and Programmes	Purpose and Main Aims and Objectives	Relevance to Plan Review and SA
South East Lincolnshire Local Plan 2011 – 2036 (adopted)	The Plan sets a housing need of at least 19,425 dwellings in the South East Lincolnshire area. Across authorities this equates to 7,744 and 11,681 dwellings for Boston Borough and South Holland respectively. The Plan identifies 126.9ha of employment, with 89.3ha for B-Class uses.	Understanding the implications of housing and employment growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand and waste requirements across the County. This can in turn assist in determining the need for amendment to Plan policy.

Appendix 3: Consultation with the ‘Consultation Bodies’

Planning Practice Guidance sets out that when deciding on the scope and level of detail of the information to be included in the SA Environmental Report, the plan-maker must consult the ‘consultation bodies’ (the Environment Agency, Natural England and Historic England). This is similarly set out within section 12 of The Environmental Assessment of Plans and Programmes Regulations 2004.

Consultation was undertaken with the consultation bodies in March 2022, for a period of five weeks. Comments were received by all three bodies and the following table outlines the key points from this consultation. The table also sets out the corresponding actions or amendments that have been made within this SA Scoping Report, or otherwise includes a narrative to explain whether or why these will be actioned in future SA Reports as appropriate.

Table 50: Contextual Review of International Plans and Programmes

Consultation Body / Consultee	Comment	Action / Response
Natural England	The Sustainability Appraisal sets out a clear framework for assessing the plan and comprehensively covers the key sustainability issues that fall within Natural England’s remit, such as biodiversity, air quality, climate change adaption / mitigation, landscape, soil resources, natural resources and water resources.	Noted.
Natural England	Natural England is generally content with the SA framework. There is a risk in some situations, development on land of limited biodiversity can lead to the creation of islands of biodiversity, permanently severed from other areas. We suggest adding “Ensure current ecological networks are not compromised and future improvements in habitat connectivity are not prejudiced.”	Added as a ‘key question’ within Sustainability Objective 1 of the SA Framework (Table 4: SA Framework for Assessing the Plan Review (Policies)).
Environment Agency	We recommend that the list of key plans and programmes is updated to include the following documents: • Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (UNESCO, 1971). • EU Soil Strategy for 2020 (November 2021)	All additional plans and programmes added.

Consultation Body / Consultee	Comment	Action / Response
	• Environment Act 2021 • Flood Risk Regulations 2009 • A Green Future: Our 25 Year Plan to Improve the Environment (Defra, 2018) • Net Zero Strategy: Build Back Greener (Department for Business, Energy and Industrial Strategy, 2021) • Clean Air Strategy 2019 • Land Use: Reducing emissions and preparing for climate change (Climate Change Committee, 2018) • National Quality Mark Scheme for Land Contamination Management (NQMS) (January 2017) • Our Waste, Our Resources: A Strategy for England (2018) • UK Climate Change Risk Assessment (Committee on Climate Change, 2022) • Water Abstraction Plan (Defra, 2021) • Meeting our Future Water Needs: A National Framework for Water Resources (2020) • National Flood and Coastal Erosion Risk Management Strategy (2020) • Anglian River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021) • Humber River Basin District Draft Flood Risk Management Plan 2021 to 2027 (Environment Agency, October 2021) • Draft Drought Plan 2022 (Anglian Water, March 2021) • The Emerging Water Resources Regional Plan for Eastern England, Water Resources East - Safeguarding a sustainable supply of water • Relevant abstraction licensing strategies, Abstraction licensing strategies (CAMS process) - GOV.UK • Any relevant local strategies relating to green and blue infrastructure networks.	

Consultation Body / Consultee	Comment	Action / Response
	In addition, reference to the 'Climate Change Act 2008' could be reworded to 'Climate Change Act 2008 (2050 Target Amendment) Order 2019'.	
Environment Agency	We suggest that specific reference should be made to the Habitat Regulations Assessment (HRA) as the outcome of that assessment may provide information which will be relevant to the assessment of options through the SA/SEA.	Amended to include reference to any emerging HRA findings within the SA Framework.
Environment Agency	We note that water resources is not identified as a key sustainability issue in table 2 as a general or focussed theme. As Lincolnshire lies in an area of high water stress, policies should be appraised with a view to minimising demand on water resources where possible.	Added as a key sustainability issue in Table 2.
Environment Agency	The latest River Basin Management Plans have been referenced above and therefore we recommend the baseline data is updated to reflect the latest information. Furthermore, we recommend that the data catchment explorer is also considered for a breakdown of why the water bodies are not currently at good status.	The baseline data has been updated in line with this recommendation.
Environment Agency	With regards to table 2 key sustainability issues, we acknowledge that the general theme of flooding refers to not impeding drainage in any way but consider there also needs to be specific reference to the impact of discharge from mines or mineral extractions in terms of discharge rates and volumes. In the past there has been great concern raised by communities downstream of gravel extractors about whether the rates/volumes of water discharged would increase their risk of flooding. It is therefore important that the SA/SEA assesses whether policies are likely to result in sites requiring discharge (continuous or intermittent) into receiving water courses that may not be capable of receiving additional water on top of natural flows.	The issue of water discharge has been included within Table 2 and the SA Framework.
Environment Agency	We do not consider that the SA/SEA framework fully reflects the ambitions set out in the	Specific indicators and targets from the Net Zero

Consultation Body / Consultee	Comment	Action / Response
	governments Net Zero Strategy. Specific objectives and indicators should be included to help reduce carbon emissions from new development and to achieve an overall reduction in greenhouse gasses wherever possible and practicable. We consider that a general theme of climate change should be included as a key sustainability issue in table 2. Focused themes of mitigating the causes of climate change and adapting to the unavoidable effects of climate change should also be included. Issues such as the elimination of biodegradable waste going to landfill are raised in the government's Net Zero Strategy: Build Back Greener. We suggest that a review of the evidence provided above would suggest a number of areas where the SA/SEA could help inform options appraisal. This may include informing consideration of how restoration projects can assist in sequestering carbon from the atmosphere.	Strategy have been included within the SA Framework. Climate Change relevant to minerals and waste development, has also been included as a key issue within Table 2.
Environment Agency	We consider the importance of effectively managing water resources as well as protecting their quality should be included in Objective 4. We therefore request that the wording is amended to: • To maintain and where possible improve the quality and sustainable use of ground and surface water resources. This would then also be a socio-economic issue as well as an environmental one.	Amended to reflect the recommended wording.
Environment Agency	We consider that the wording of Objective 6 could be strengthened to ensure that policies in the plan are enabling progress towards Net Zero Carbon. Minimising emissions and promoting energy efficiency alone will not be adequate to meet the governments objectives. Policies in the minerals and waste plan should be looking to ensure that developments are at least carbon neutral over their lifetime.	SA Objective 6 is amended to '6) To ensure that, where possible, new development is carbon neutral.'

Consultation Body / Consultee	Comment	Action / Response
Environment Agency	The wording of Objective 7 should be amended to make it clear that there should be no increase in flood risk as a result of the policies included in the plan. We suggest amending the wording to: • To ensure that minerals and waste activities do not lead to an increase in flood risk and are prepared for the impacts of climate change.	Amended to reflect the recommended wording.
Environment Agency	The assessment criteria for Objective 4 states that no improvement to water quality or the sustainable use of resources will be possible from site allocations. We consider that sites in areas where water quality is an issue should look to improve the quality of water through development. This may the introduction of natural systems which can improve surface water runoff into water courses, or scheme to enhance biodiversity in water courses. We suggest that further consideration should be given to how sites can be assessed as to whether positive water quality effects can be achieved.	The SA Framework for assessing sites has been devised so that assessment can be done a 'level playing field.' The SA can only draw on submitted information, which is of a high level within a strategic plan and call-for-sites process. It is considered that details such as a promoter's intentions to include natural systems for the improvement of surface water runoff would be forthcoming at the planning application stage only. Nevertheless, the recommendation has been included as a policy consideration within the SA Framework.
Environment Agency	We have the same concern with Objective 5 and 6. We consider that a better understanding of how site allocations may impact on carbon emissions/sequestration and air pollution should be developed to allow appropriate assessment criteria to be developed.	The SA Framework for assessing sites has been devised so that assessment can be done a 'level playing field.' The SA can only draw on submitted information, which is of a high level within a strategic plan and call-for-sites process. It is

Consultation Body / Consultee	Comment	Action / Response
		considered that details such as a promoter's intentions regarding carbon emissions and restoration would be forthcoming at the planning application stage only. Nevertheless, the recommendation has been included as a policy consideration within the SA Framework.
Environment Agency	Whilst we welcome the approach to the assessment of flood risk against the flood zones for Objective 7, it is important that assessments are also made of any impact on ground and surface water flooding. These should be included in the assessment criteria. We also consider that a distinction should be drawn between sites in Flood Zone 3a and Flood Zone 3b as this has development acceptability implications under Table 3 of the Planning Practice Guidance – Flood risk and coastal change section	Amendments are made to Objective 7 in the Site Assessment Frameworks as recommended. A new site assessment criterion 7b) has been added to assess sites for surface water flood risk
Historic England	The section on the Historic Environment on page 14 is welcomed. Within the second column, the wording should be amended to 'Minimising and avoiding effects on heritage assets and their settings' to more closely reflect NPPF wording. Within the third column, reference should be included to non-designated heritage assets and to the setting of heritage assets.	The necessary amendment has been made within this Scoping Report.
Historic England	Objective 3 is welcomed. It would be helpful to include reference to the words 'heritage assets and their settings' within the text to more closely reflect NPPF wording.	The necessary amendment has been made within this Scoping Report.
Historic England	Reference to non-designated heritage assets is welcomed. Battlefields should also be referenced in the final column (and throughout the document as necessary).	The necessary amendment has been made within this Scoping Report.

Consultation Body / Consultee	Comment	Action / Response
Historic England	The framework methods for SA Objective 3 are welcomed, in particular not using a proximity buffer.	Noted.
Historic England	A1.3 Cultural Heritage - This section, and its detail, is strongly welcomed. It would be helpful to add reference to 'settings of heritage assets'.	The necessary amendment has been made within this Scoping Report.
Historic England	Historic England strongly advises that the conservation and archaeological team of your authority are closely involved throughout the preparation of the SA of this Plan. They are best placed to advise on local historic environment issues and priorities, including access to data held in the HER (formerly SMR); how the policy or proposal can be tailored to minimise potential adverse impacts on the historic environment; the nature and design of any required mitigation measures; and opportunities for securing wider benefits for the future conservation and management of heritage assets. Historic England has produced guidance for all involved in undertaking SEA/SA exercises which gives advice on issues relating to the historic environment.	Noted. This is proposed as part of the site assessment methodology.

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