EAST LINDSEY STRATEGIC FLOOD RISK ASSESSMENT

MARCH 2017

Supporting Economic Growth for the Future

East Lindsey
DISTRICT COUNCIL

Contents

EXECUTIVE SUMMARY

1.1 The Strategic Flood Risk Assessment (SFRA) provides an assessment of flood risk to inform the Council's strategy for delivering sustainable development. This document reflects the National Planning Policy Framework and the latest Planning Practice Guidance.

1.2 38% of the District is at risk from coastal flood risk, with additional risk over the whole District coming from surface water flooding ie from rivers, drains and localised flooding.

1.3 The SFRA uses the evidence of the Environment Agency Flood Hazard Maps and the Flood Zone Maps. It considers the District in two parts:-

- The Coastal zone - the area primarily at threat from tidal flooding defined in broad terms by the boundary of the Environment Agency's Coastal Flood Hazard Maps. These maps provide detailed information on the probability, the depth, and velocity rate of onset and duration of flooding.

- Inland East Lindsey the remainder of the District, where a Level 1 Assessment has been prepared based on the Environment Agency`s Flood Zone Maps.

1.4 In the Coastal Zone, the Hazard Maps categorise risk over 4 zones; Danger to All (Red), Danger to Most (Orange), Danger to Some (Yellow) and Low Risk (Green). In agreement with the Environment Agency the area covered by the 3 highest 'Danger Zones' provide the boundary of the coastal zone. In this area the Council's policy is to limit new housing development to sustain current population levels so that the risk to life and property is not significantly increased.

1.5 In this area the level of danger, as categorised by the Hazard Mapping is also used to provide the basis for establishing a 'least risk' strategy for future development and to provide evidence for the Sequential Test as part of the decision making process for planning applications.

1.6 For Inland East Lindsey, the Environment Agency Flood Zone Maps (as amended) have been used as a constraint in the site allocation process for the Local Plan. Where a part of a site lies in or abuts Flood Zones 2 or 3 the capacity of the site to accommodate development has been adjusted to reflect this issue.

1.7 Part 1 of the SFRA sets the scene, provides the policy background and the framework for decision making.

1.8 Part 2 of the document shows the extent of flood risk in the Towns and Large Villages where future development is proposed. Further information on surface water flooding is also available from the Environment Agency. For schemes outside these locations developers should use the Environment Agency website to establish the flood risk locally. http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=floodmap&layerGroups=default&lang=_e&ep=map&scale=7&x=531500&y=181500

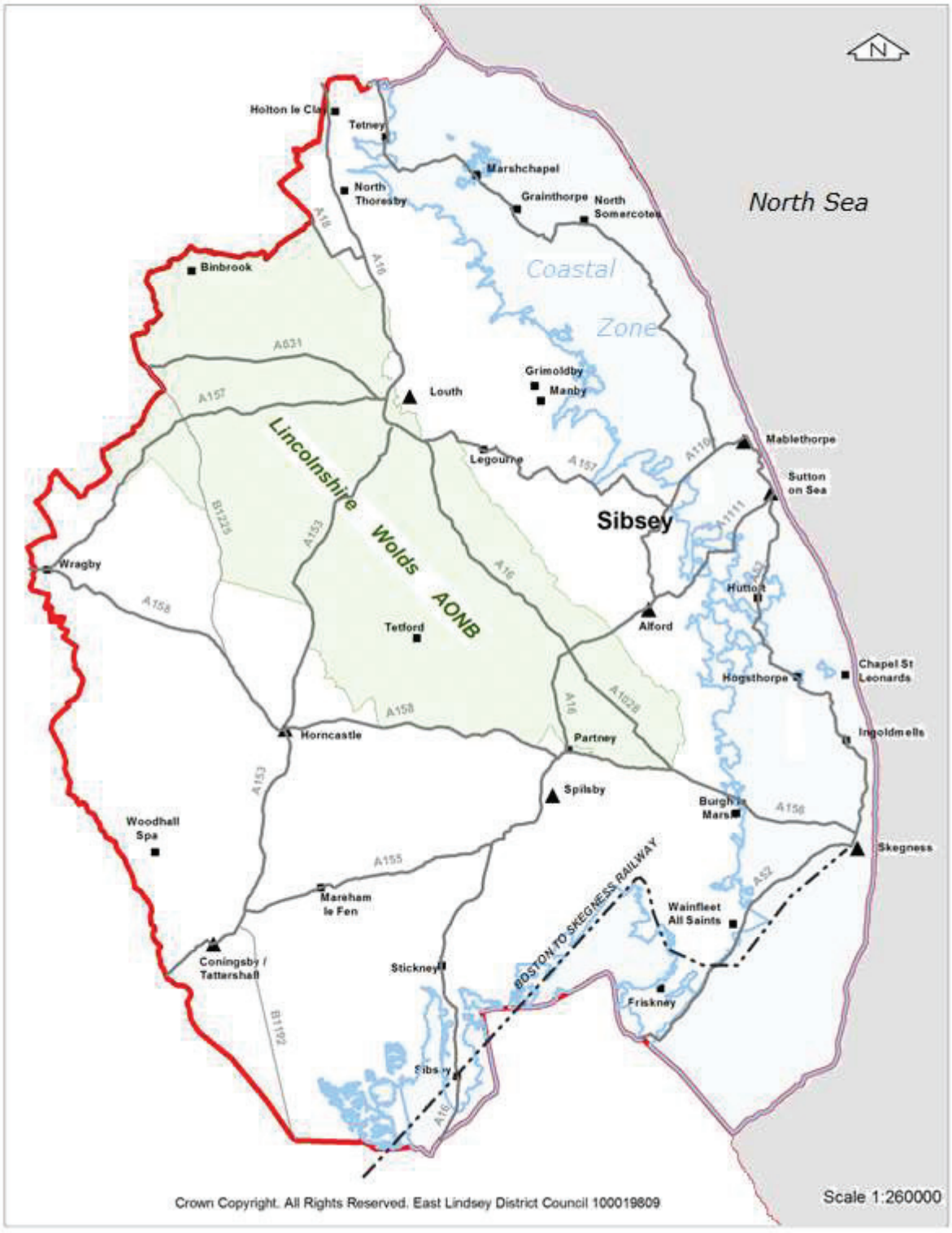
1.9 Part 3 of the SFRA considers the risk of flooding from other sources such as ground and surface water and provides initial guidance on the preparation of site specific assessments including the use of Sustainable Urban drainage systems to meet the requirements of the Flood & Water Management Act 2010.

PART 1 – SETTING THE SCENE

2.0 AREA OVERVIEW

2.1 The District of East Lindsey is predominantly rural and sparsely populated. The main urban centres occupy less than 5% of its area, with numerous villages of varying size distributed across the remainder. On the coast about 24400 static caravans also form a key component of the local landscape. Below is a key diagram of the District, showing the extent of coastal flood risk in relation to the rest of East Lindsey.

Diagram of the East Lindsey Area



Key

- District Boundary
- Coastal Flood Risk Area
- Area of Outstanding Natural

2.2 The eastern limit of the District is defined by the North Sea and, due to the predicted effects of climate change this area – notably between Skegness and Mablethorpe, is most at risk of flooding.

2.3 The southern part of the district is fen-land and to the south west the boundary is the River Witham. In this area the risk of flooding is mainly fluvial although there is also a small part at risk of tidal flooding.

2.4 The Lincolnshire Wolds dominate the central area of the district and rainfall from the Wolds feeds the rivers and drains that flow across the marsh and fen to the sea.

2.5 To the west of the Wolds the clay vale is part of a broad low valley where the risk of flooding is generally localised.

Coastal Issues

2.6 The Flamborough Head to Gibraltar Point Shoreline Management Plan (SMP) along with the Humber Estuary, and the Wash (SMPs) provide detailed assessments of coastal processes and issues for the full length of the Lincolnshire Coast. They consider how those processes might change between the present day and 2115 and set out what management policies will be appropriate for flood management in the future to respond to anticipated climate change. In broad terms the policies of the SMPs presently promote a policy of 'holding the line' i.e. to maintain current lines of defence. The SMP`s do not examine the funding of flood defences.

2.7 The Flamborough Head to Gilbraltar Point SMP which covers the bulk of the East Lindsey coast identifies 2 Policy Units and predicts the coastal process changes up to 2115 based on 3 zones within those policy units.

2.8 Zone 1, north of Theddlethorpe; the shoreline here is made-up of wide mudflats and sand banks and is currently accreting. However, to ensure defences are sustainable the SMP envisages that 'limited managed re-alignment' may be required and the scheme recently completed at Donna Nook is an example of this.

2.9 Zone 2; the intensively developed stretch between Mablethorpe and Skegness is an eroding coastline and the North Sea is held back by hardened defences which are supplemented by a beach nourishment programme (Lincshore). This scheme aims to protect against a 1 in 200 year (0.5% in any year) tidal flood by increasing the level of the beach and reducing the risk of waves reaching the main defences and going over the seawalls. It protects the clay foreshore against further erosion and prevents rapid deterioration of the defences.

2.10 Zone 3, south of Skegness towards Gibraltar Point the coastal process is predominantly one of accretion. This is expected to change in the longer term and may necessitate increased management activity. The Flamborough Head to Gibraltar Point Shoreline Catchment Plan can be found at:

http://www2.eastriding.gov.uk/council/plans-and-policies/other-plans-and-policies-information/sustainable-environment/

2.11 To the north of the District from Saltfleetby towards Grimsby, the coastal defences on the Humber Estuary are managed through the Humber Estuary Strategy. South of Gibraltar Point, the Wash SMP provides guidance on future management issues and proposes a managed re-alignment of the coast for later epochs.

2.12 The Lindsey Marsh Internal Drainage Board undertakes substantial activity in the coastal area. This includes maintenance and operation of pumping stations, along with maintenance of significant lengths of watercourses and culverts in areas such as Mablethorpe, Skegness, Sutton on Sea and Ingoldmells.

Fluvial Issues

2.12 Management of the Districts' watercourses is overseen by the Environment Agency (who deal primarily with the main rivers) along with the Lindsey Marsh and the Witham 3rd and Witham Fourth Internal Drainage Boards (IDBs) who are responsible for many of the smaller drainage channels. (The boundaries of the IDB areas is shown on Appendix 5.)

2.13 The Lindsey Marsh IDB aims to maintain their drains to a standard of flood protection of between 1 in 10 years (10%) for agricultural land and 1 in 75 years (1.3%) for urban areas.

2.14 The Witham 3rd IDB seeks to maintain a general standard capable of providing flood protection to agricultural land and developed areas of 1 in 20 and 1 in 100 years respectively.

2.15 The Witham 4th IDB watercourses aims to maintain a free board 0.9m above the water level for a 1 in 10 year rainfall to all but the lowest parts of the District, which offers a level of protection to overtopping of around 1 in 50 with some areas higher. The Board's main drains aim to provide a 1 in 100 year standard of protection to all but the lowest parts of the District.

2.16 The main watercourses in the District are shown on Map 1. To the south the River Witham is the most significant river locally. Along with the East & West Fen Catchwater Drains, and the Steeping River, it provides a main

pathway for water from a much wider network of drains and 'sewers' including the River Bain that runs through the towns of Horncastle and Coningsby / Tattershall before becoming part of the River Witham.

2.17 The Witham Flood Management Plan (CFMP) provides an assessment of how flood risk is expected to change in the mid to long term (up to 100 years) in this area. It notes that for much of their lengths the systems in the catchment run between embankments that protect the surrounding areas from inundation. However it does recognise a degree of risk from tidal flooding in the Fens around Boston as well as fluvial risk at Horncastle and along the River Bain.

2.18 A concern raised by the CFMP is the flood risk at Horncastle caused by the steeper nature of the upper Bain catchment to the north, and the narrow channel through the town and the potential risk of overtopping in the event of heavy rainfall. A recently completed flood alleviation scheme being undertaken at Horncastle aims at reducing the threat to 1 in 100.

2.19 The floods of June 2007 resulted in some flooding from the River Steeping, in Wainfleet. The cause was identified as a low spot in the defence that was repaired to reinstate the standard of protection and the flood risk management partners continue to work together in this area to manage the risk of flooding.

2.20 In the north and east of the District (Map 1) the main 'rivers' flowing from the Wolds eastwards across the marsh are the Waithe Beck, the River Lud, the Louth Canal, and the Great Eau to Saltfleet Haven, the Willoughby High Drain and the Woldgrift Drain. Flood risk in this area is assessed in the Louth Coastal Catchment Flood Management Plan.

2.21 There are a number of potential flood risk issues identified in the Louth CFMP area, these are:-

- River flooding at Louth, Mablethorpe and Chapel St Leonards
- Tide locking at the main tidal outfalls
- Potential embankment breaches from the main upland rivers across lower lying areas of the catchment
- Surface water and sewer flooding

2.22 The main threat of flooding in Louth is as a result of heavy downpours causing water to overtop the banks of the River Lud, and it is associated with flooding from surface and foul water systems. A flood alleviation scheme has been developed to reduce flooding in Louth from the River Lud. That scheme is calculated to reduce the risk in Louth from 1 in 5 to 1 in 100.

Flooding from Other Sources

2.23 In addition to river flooding the NPPF identifies rainfall, rising groundwater, overwhelmed sewers and drainage systems as potential sources of flooding (collectively known as surface water flooding). As the local events in June 2007 and more recently in 2012 showed, in the urban environment of the District it is a particular problem where available permeable surfaces are at a premium and foul and surface water systems become overloaded at the same time.

2.24 The response to flooding from other sources (surface water, ground water and ordinary watercourses) that is managed by and including the role of the County Council as the Lead Local Flood Authority, and the requirements for site specific flood risk assessments to address local issues, are dealt with in more detail in Sections 3 and 7 of this document.

3.0 POLICY FRAMEWORK

3.1 The Strategic Flood Risk Assessment (SFRA) has been prepared within the framework of the National Planning Policy Framework (NPPF), and it's associated Planning Practice Guide. It draws together the best information available at this time to provide the assessment of flood risk for planning policy and development management processes for East Lindsey.

3.2 The NPPF sets out the requirements for planning applications and local plans in dealing with flood risk and climate change. Amongst other aims they should seek to:-

- Take full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy); (s17)

- Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production) ;(s17)

- Plan for new developments to avoid increased vulnerability to the range of impacts arising from climate change. (s99)

- Where new development is proposed in vulnerable areas, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure. (s.99)

- Avoid inappropriate development in areas at risk of flooding by directing development away from areas at highest risk but where development is necessary, making it safe without increasing flood risk elsewhere. (s100)

- Apply the sequential and exceptions test as appropriate (see NPPF s101) and Planning Policy Guidance (paras 019 and 023)

- Manage Flood Risk from all sources

3.3 In addition to the specific roles of the Environment Agency and Internal Drainage Boards for rivers and drains, the Flood & Water Management Act requires an integrated response to other causes of flooding. Lincolnshire County Council (LCC) is the lead authority locally and, along with the 'Risk Management Authorities' it has responsibility for implementing and monitoring a strategy for local flooding arising from surface-water runoff, groundwater, and ordinary watercourses (including lakes and ponds).

3.4 To that end the Joint Lincolnshire Flood Risk & Drainage Management Strategy was produced in 2012. It integrates the roles of the County Council, emergency services, local authorities, Internal Drainage Boards, Water and Sewerage Companies the EA and Natural England, to take a strategic county wide view on flood risk and address issues and problems of localised flooding. For more information see https://www.lincolnshire.gov.uk/residents/environment-and-planning/flood-risk-management/flood-risk-management-partnership/103046.article

3.5 As lead Authority the County Council are required to investigate flooding incidents under section 19 'Duty to Investigate'; and maintains a register of structures and features that are considered to have a significant effect on flood risk in the area. These reports are available on the County Council website.

3.6 As a further measure to ensure the risk of flooding is minimised, Lincolnshire County Council is now a statutory consultee for surface water drainage matters on all major or 'relevant planning applications'.

3.7 The SFRA has been prepared in consultation with the Environment Agency (EA) and Lincolnshire County Council. It brings together information from the Agency, Lincolnshire County Council Emergency Planning & Highways Divisions; the local Internal Drainage Boards, and the work of its land drainage staff. It draws on the findings of the following studies:-

- EA Flood Maps for Planning
- EA Hazard Mapping, 2009
- East Lindsey SFRA 2006
- Louth Coastal Catchment Flood Management Plan (CFMP)(2009)
- River Witham Catchment Flood Management Plan (CFMP) (2009)
- Flamborough Head to Gibraltar Point Shoreline Management Plan 2009
- Humber Flood Risk Management Strategy 2008
- Wash Shoreline Management Plan (2010)
- Joint Lincolnshire Flood Risk and Drainage Management Strategy
- Anglian River Basin District Flood Management Plan 2015-2021
- Humber River Basin District Flood Management Plan 2015-2021

3.8 The Environment Agency (EA) Flood Zone Maps have provided the starting point for assessing the risk of flooding since they were introduced in 2004, and they continue to provide guidance for the inland part of the District where the more detailed assessment needed to inform a Level 2 Assessment has not been carried out. These maps are updated regularly and can be accessed through the EA website.

3.9 In 2009 the Environment Agency produced Flood Hazard Mapping for the coast. This provides data for 2006 and 2115 flood event scenarios in this area

and the maps have been used to establish the boundary of the Coastal Zone in the Local Plan. The Plan uses 2115 flood event scenario to underpin the Councils' planning policies and decision making for development management. The Hazard Maps categorise risk over 4 hazard zones; Danger to All (Red), Danger to Most (Orange), Danger to Some (Yellow) and Low Risk (Green).

3.10 The Hazard Mapping provides a greater level of detail than the Flood Zone maps, on the areas at risk including the depth, velocity and estimated duration of flooding. (Copies should be obtained from the Environment Agency.) The Council will use relevant parts of the Environment Agency Standing Advice Matrix (2013) to ensure a consistent approach to applying the Hazard Rating for different locations identified by the Hazard and Flood Zone Mapping

3.11 In addition, the Council and the Environment Agency have agreed an approach for applying the Sequential and Exceptions Tests for dealing with planning applications in the Hazard Zones. This is dealt with in more detail in Section 9.

Planning Policy and Development Management

3.12 Section 10 of the National Planning Policy Framework (NPPF) requires local planning authorities to apply a sequential, risk-based approach to the location of development to avoid flood risk to people and property where possible, and manage any residual risk, taking account of the impacts of climate change, by:

- applying the Sequential Test
- if necessary, by applying the Exception Test
- safeguarding land from development that is required for current and future flood management
- using opportunities offered by new development to reduce the causes and impacts of flooding; and
- where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking
- opportunities to facilitate the relocation of development, including housing, to more sustainable locations.

3.13 Where planning applications are concerned the NPPF (s102) states local planning authorities should ensure flood risk is not increased elsewhere, and only consider development in flood risk areas appropriate where informed by a site-specific flood risk assessment. Also, following application of the Sequential Test, and if required the Exception Test, it can be demonstrated that:

- within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and,
- development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed; it gives priority to the use of sustainable drainage systems.

3.14 Essentially the two parts to the Test require proposed development to show that it will provide wider sustainability benefits to the community that outweigh flood risk, and that it will be safe for its lifetime. This has been considered as part of the Local Plan and is discussed further below.

East Lindsey Local Plan Alteration 1999 & Saved Policies 2007.

3.15 The Saved Policies of the Local Plan make provision for the delivery of housing on allocated sites and requires developers to show that development can provide foul sewers, sewage treatment and surface water drainage of adequate capacity to serve the site.

3.16 Whilst those elements of the Local Plan remain pertinent it should be noted that the Plan has been superseded by more recent legislation and in addition to the above schemes will need to meet current requirements. This will include the provision of Sustainable Urban Drainage Systems, as below.

Local Plan 2016 - 2031

3.17 The East Lindsey Local Plan sets out the Council's approach to minimising the impact of flood risk. It applies a high level sequential approach to development across the District by treating the coastal and inland parts of the District as 2 discrete areas with their own flood risk policies.

The Coast

3.18 Chapter 10 - Coastal East Lindsey in the Core Strategy sets out the Council`s policy approach to development in the Coastal Zone. This policy sets out development the Council will and will not support in this area of flood risk.

3.19 All relevant development in areas of flood risk has to show how it has passed the Sequential and Exception tests. With regard to the Sequential Test this steers development to areas of lowest risk. One of the aims of the Coastal Policy is to make it clear to those wishing to develop what will and will not be supported by the Council. Part of this work is to make the process of submitting and understanding the process around planning easier. As noted previously this approach is dealt with in more detail in Section 9.

3.20 For static caravan holiday sites in locations where, the short term threat of flooding is low, the Council will look to grant temporary (20 year) permissions. This is to reflect the need to sustain the local economy and the predicted, lower rate of rising sea level from climate change over the 1st epoch (see section 5). These locations are shown on Maps 4,5,6 and 7 at the end of that section.

3.21 In addition the Council and the Environment Agency have agreed an approach for dealing with housing proposals (in settlements) on the edge of the Coastal Hazard Zones that lie within Flood Zone 3. Some of these settlements weave in and out of the Coastal Zone. They are still washed over by the Flood Zone 3 maps but the risk in reality is low between the outer extents of Hazard Zone and the Flood Zone. For housing developments in these locations the starting point for any planning application determination will be the Flood Zone mapping which shows flood risk without any defences in place. It is still relevant but National Planning Policy advocates that more refined evidence on flood risk should be used and where available information from the Coastal Flood Hazard Maps will be used.

3.22 This means that sequentially, a proposed housing site which lies outside the hazard zone but inside flood zone 3 may be acceptable in terms of flood risk, because that risk is low, though they may still have to carry out some mitigation, depending on advice from the EA. The site would be deemed to have passed the sequential and exception test. In general the yellow (danger for some) and green (low risk) zones are quite narrow bands of flood risk with the majority of the land in the coast lying in orange and red zones. If the housing site lies in the green zone or partly in the green zone it may still be acceptable subject to mitigation.

3.23 If a site for housing is fully in the coastal flood hazard zone in a red, orange or yellow zone, then the area for search for the sequential test is the rest of the District outside those zones. This would then conform to the NPPF in that inappropriate development should be avoided by directing development away from areas of highest risk – this search would include those settlements that border the zone but are not completely in it but are in flood zone 3.

Inland East Lindsey

3.24 In the inland area the Council has excluded sites in flood zones 2 and 3 from its local plan allocations. Where schemes come forward through the development management process within these areas the Council will:-

- Apply a sequential approach to the location of new development away from areas at risk of flooding in line with the NPPF. In these cases the Council will use 'inland' East Lindsey as its area of search.

- On brownfield sites within areas of flood risk that are in need of regeneration, support for residential use will only be forthcoming where it can be shown that no viable, alternative use can be found.

- Require new development to address the need for water conservation and sustainable drainage systems as part of their design.

3.25 All relevant development whether in the coast or inland will need to provide a site-specific flood risk assessment which should identify and assess the risks from all forms of flooding, to and from the proposed development. It should demonstrate how these risks will be managed so that development remains safe throughout its lifetime, taking into account climate change.

3.26 The NPPF identifies 4 flood risk zones (1, 2, 3a & 3b) and sets out what type of development is appropriate in each zone according to a vulnerability classification. In turn this relates to different land uses and (in Table 3 of that document) indicates where based on those classifications, the exception test will be applied. That table is set out below.

Table 1: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2 of the guidance)	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	√	√	√	√	√
Zone 2	√	Exception Test required	√	√	√
Zone 3a	Exception Test required †	X	Exception Test required	√	√
Zone 3b functional floodplain	Exception Test required*	X	X	X	√*

Key: √ Development is appropriate. X Development should not be permitted.

Notes to table 1:

This table does not show the application of the Sequential Test which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;

The Sequential and Exceptions Tests do not need to be applied to Minor Developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home.

Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

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

4.0 CLIMATE CHANGE

4.1 SFRAs are a response to flooding events since 1990, and the increasing awareness of the impact of global warming and climate change in the future. The most significant of these are, rising sea levels and changing weather patterns resulting in increased storm frequency, duration and severity.

4.2 The National Planning Policy Framework sets strict tests to protect people and property from flooding which all local planning authorities are expected to follow. Where these tests are not met, national policy is clear that new development should not be allowed. Detailed guidance for dealing with Climate Change is provided by the Planning Practice Guidance: Flood Risk and Coastal Change. https://www.gov.uk/guidance/flood-risk-and-coastal-change#site-specific-flood-risk-assessment-all

4.3 The Planning Policy Guidance provides guidance for both flood risk assessments and strategic flood risk assessments including details of the allowances that should be in any assessment in respect of :-

- Peak river flow by river basin (either Humber or Anglian)
- Peak rainfall intensity
- Sea level rise, and
- Offshore wind speed and extreme wave height

4.4 This document is not intended to reproduce that guidance but, in this section aims to highlight the key issues that need to be considered when preparing strategic and site specific assessments. For more details see; https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

4.5 East Lindsey is covered by the Humber and Anglian river basin areas. The table below shows the predicted potential change in peak river flows as a consequence of climate change for both. Flood Risk Assessment s should use these in conjunction with the flood risk vulnerability classification for different developments.

Table 2 peak river flow allowances by river basin district
(East Lindsey falls between the Humber and Anglian River Basin areas)

River basin district	Allowance category	Total potential change anticipated 2015 to 2039	Total potential change anticipated for 2040 to 2069	Total potential change anticipated for 2070 to 2115
Humber	Upper end	20%	30%	50%
	Higher central	15%	20%	30%
	Central	10%	15%	20%
Anglian	Upper end	25%	35%	65%
	Higher central	15%	20%	35%

	Central	10%	15%	25%

4.6 The changing weather patterns accompanying climate change, will see dryer winters and wetter summers marked by heavy downpours of rain, and as well as increasing the pressure on rivers and drains will impact, particularly in urban areas where impermeable surfaces predominate.

4.7 It is predicted that rainfall intensity increases will range between 5% - 40% (see below) and assessments should be made across these levels.

Table 3 peak rainfall intensity allowance in small and urban catchments (use 1961 to 1990 baseline)

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

4.8 The table below sets out the 'sea level allowances for net sea level rises between 1990 and 2115. It indicates the average annual increase (and total increase) expected over the 4 epochs up to 2115 and provides the basis for establishing the extent of possible flooding along the coast.

4.9 It is expected that the sea level rise will increase the rate of coastal erosion nationally. The coastal erosion maps for the Lincolnshire coast show that based on the relevant shoreline management plans, there will be no change along the East Lindsey coastline for the foreseeable future.

Table 4 Sea level allowance for each epoch in millimetres (mm) per year with cumulative sea level rise for each epoch in brackets

Area of England	1990 to 2025	2026 to 2055	2056 to 2085	2086 to 2115	Cumulative rise 1990 to 2115 / metres (m)
East, East Midlands, London, south east	4mm p.a (140 mm)	8.5mm p.a. (255 mm)	12mm p.a (360 mm)	15mm p.a. (450 mm)	1.21 m

4.10 As a consequence of higher sea levels it is also predicted that wave heights will increase and that we may also see an increase in the duration and severity of storms. Wind speed plays an important part in this and assessments of any proposed development in coastal areas will need to take this into account.

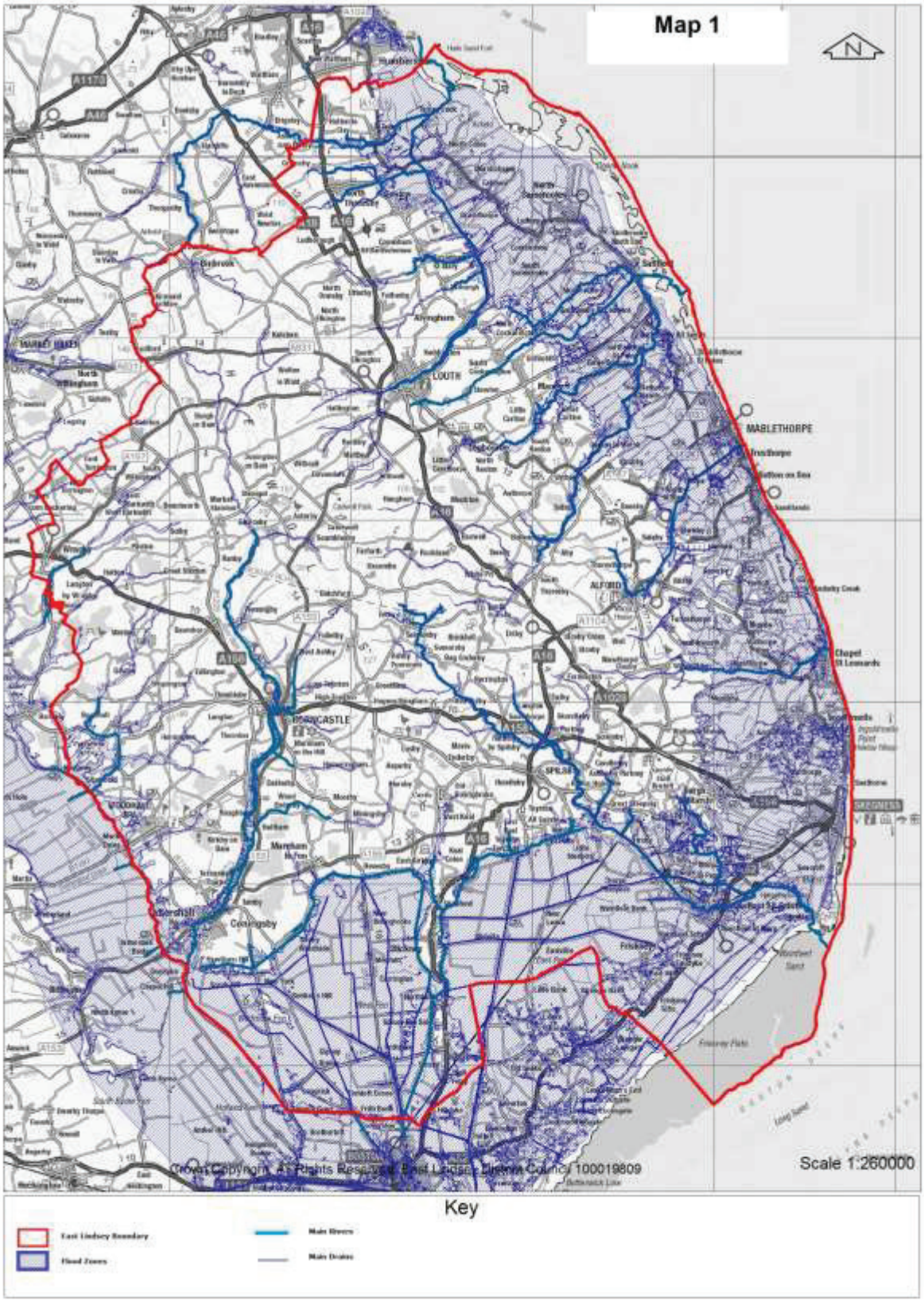
4.11 In the inland part of the District the Local Plan has used the extent of Flood Zone 2 as a constraint when allocating sites for new development and includes a strategy for the maintenance of watercourses, and improved drainage systems

(including urban drainage systems) as part of new developments. It considers that these measures will address the anticipated risk associated with climate change and, that by making no provision for strategic growth in the coastal area the Plan has properly addressed the issue.

4.12 In addition the Council and the Environment Agency have established various protocols to deal with local circumstances such as the development of brownfield sites and holiday accommodation which reflect the need to balance the needs of the community with the requirements for assessing flood risk.

5.0 FLOOD RISK MAPPING

Map 1 - East Lindsey area showing Main Rivers and Flood Zones



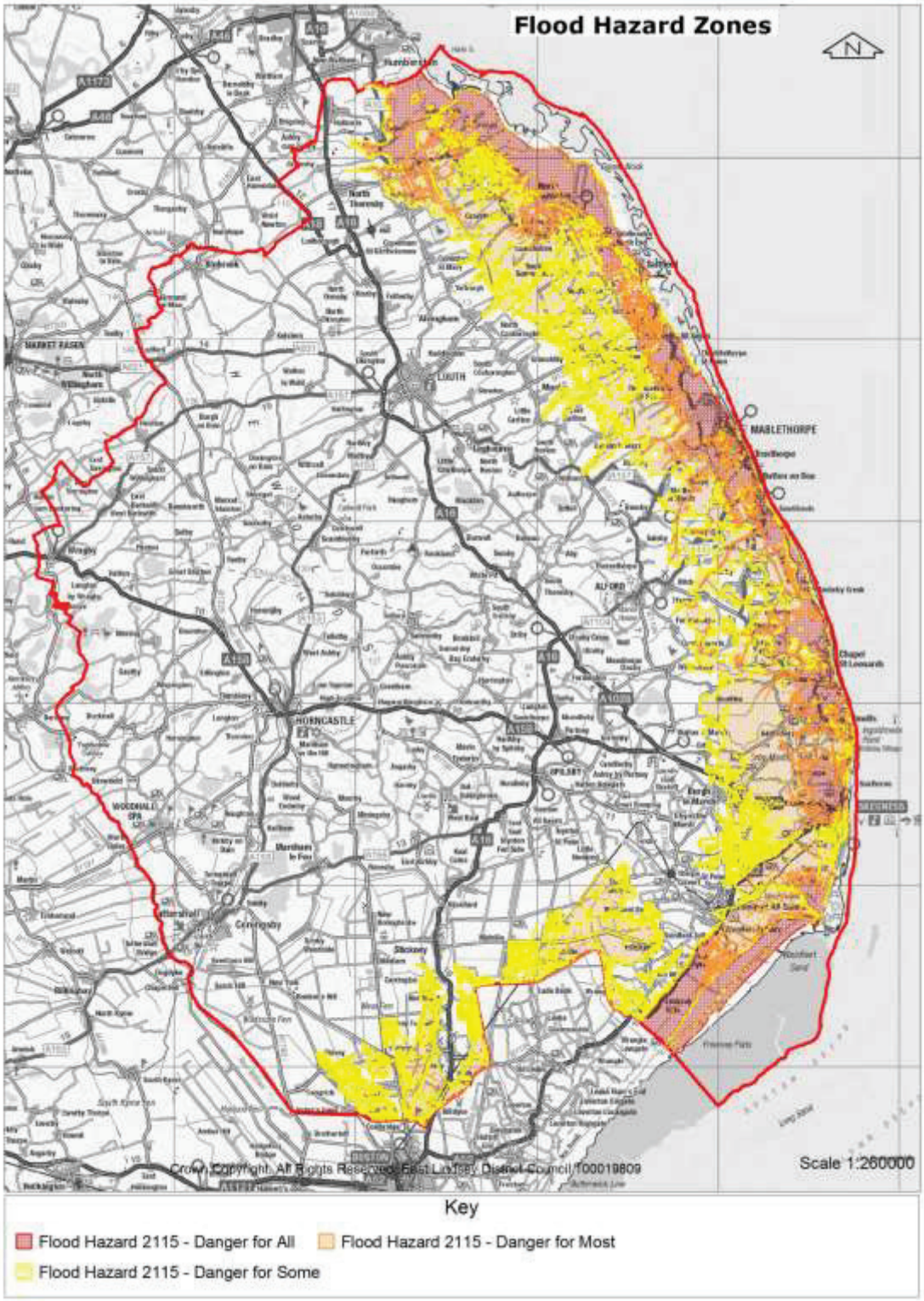
5.1 Map 1 shows the extent of the FLOOD ZONES in East Lindsey produced by the Environment Agency, along with the designated Main Rivers and Internal Drainage Board Drains maintained by the Agency and the Internal Drainage Boards.

5.2 The Flood Zone information continues to be used for Inland East Lindsey. However, it has been superseded and refined by the Coastal Flood Hazard Mapping (Map 2 below) and this will provide the basis for planning policy decisions along the coast in the future.

5.3 Part 2 of the SFRA shows the extent of flood risk around the inland towns and large villages where development is proposed in more detail. For the purpose of the Plan it has been agreed that only the areas defined by the Red (danger for all), Orange (danger for most) and Yellow (danger for some) zones will be considered at risk and that they will define the 'coastal zone' this zone includes the settlements listed below.

Addlethorpe, Anderby, Chapel St Leonards, Croft, Ingoldmells, Mablethorpe, New Leake, North Cotes, North Somercotes, Saltfleetby All Saints, Saltfleetby St Clements, Saltfleetby St Peter, Skegness, Skidbroook cum Saltfleet, South Somercotes, Sutton on Sea, Theddlethorpe All Saints, Theddlethorpe St Helen and Trusthorpe.

Map 2 - Areas at risk of flooding from breaching of sea defences, due to a 1 in 200 year event in 2115



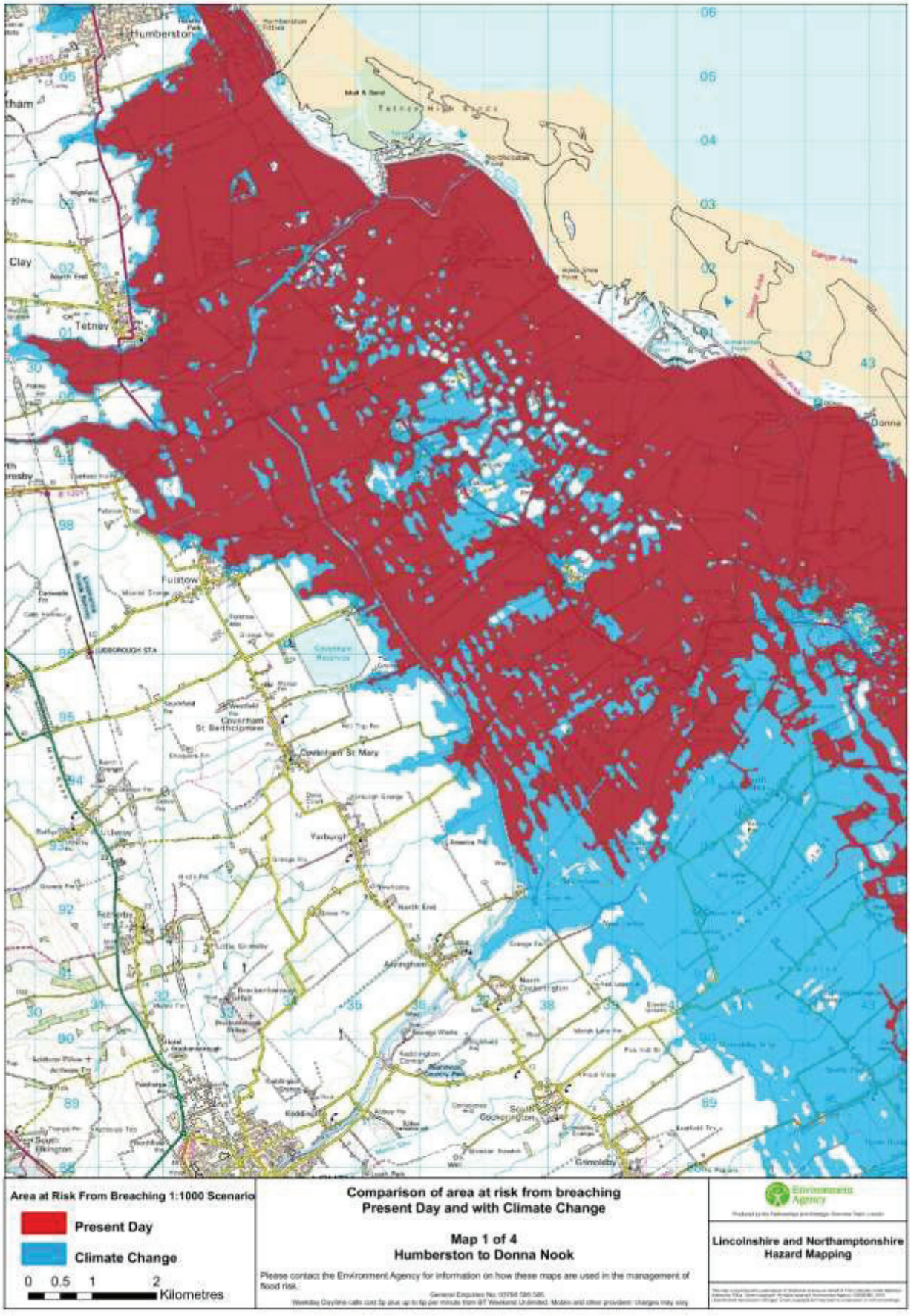
6.0 PRESENT DAY FLOOD RISK ON THE COAST AND CARAVAN SITES

6.1 As discussed above, where the impact of climate change is not expected to increase risk in the short term, temporary permissions for holiday caravans will be considered by the Council. This is covered in the Core Strategy under Strategic Policy SP19 – Holiday Accommodation which states at paragraph 10;

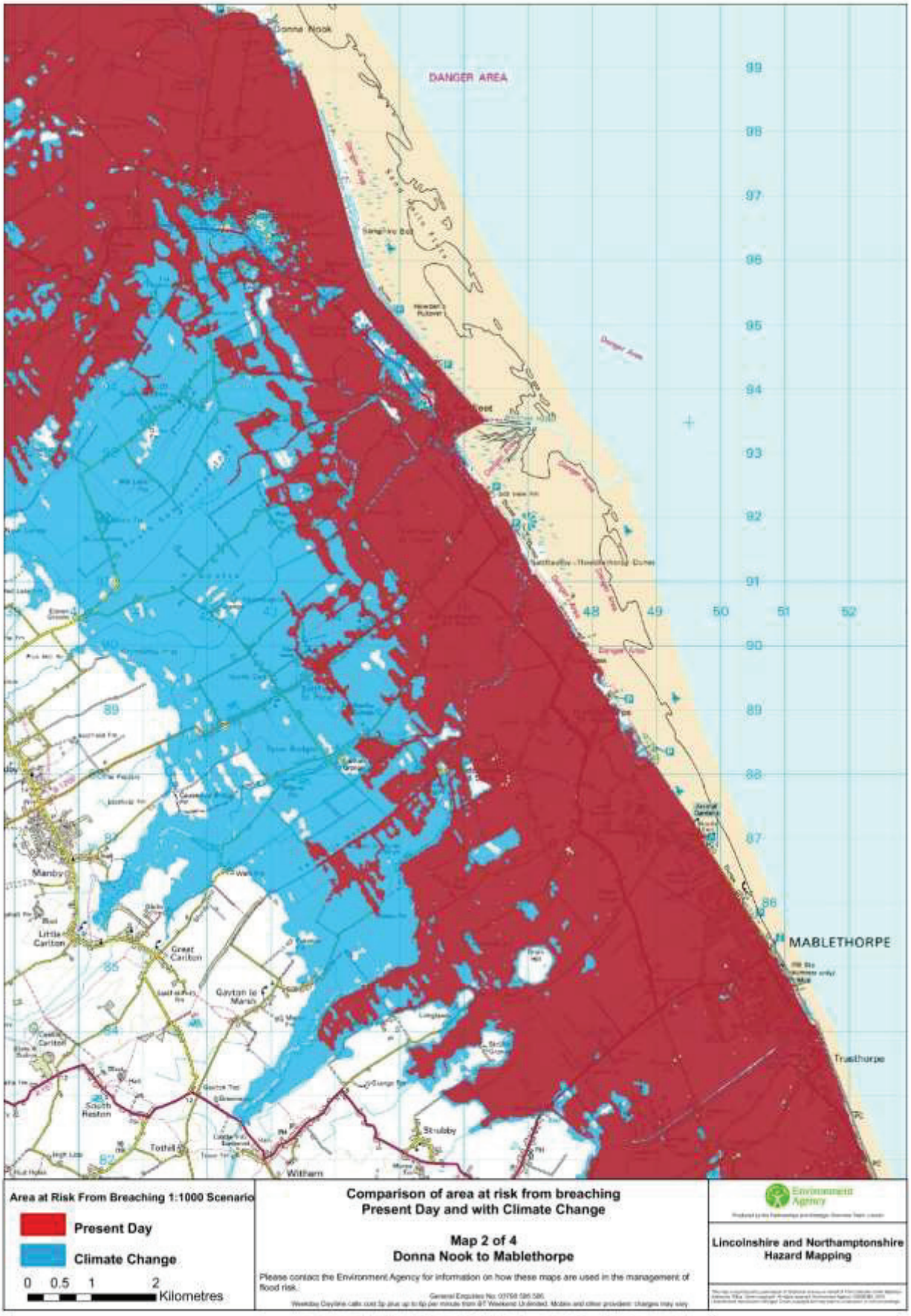
"10. There are some limited areas in the Coastal Zone that are not currently shown to be impacted by flood water in the current day breach scenario. In these areas there may be an opportunity to allow holiday sites to be safely occupied throughout the year for a limited period of 20 years. This would need to be secured via planning condition to allow an opportunity to reassess the impacts of climate change in 20 years' time. At that time our knowledge and understanding of how climate change is progressing will be better understood and we will also be able to use the latest available information to provide robust evidence. The Strategic Flood Risk Assessment sets out these areas."

6.2 The areas where this approach will be applied are shown on the maps below, the Council will manage and monitor these conditions in the same way as it monitors all planning conditions.

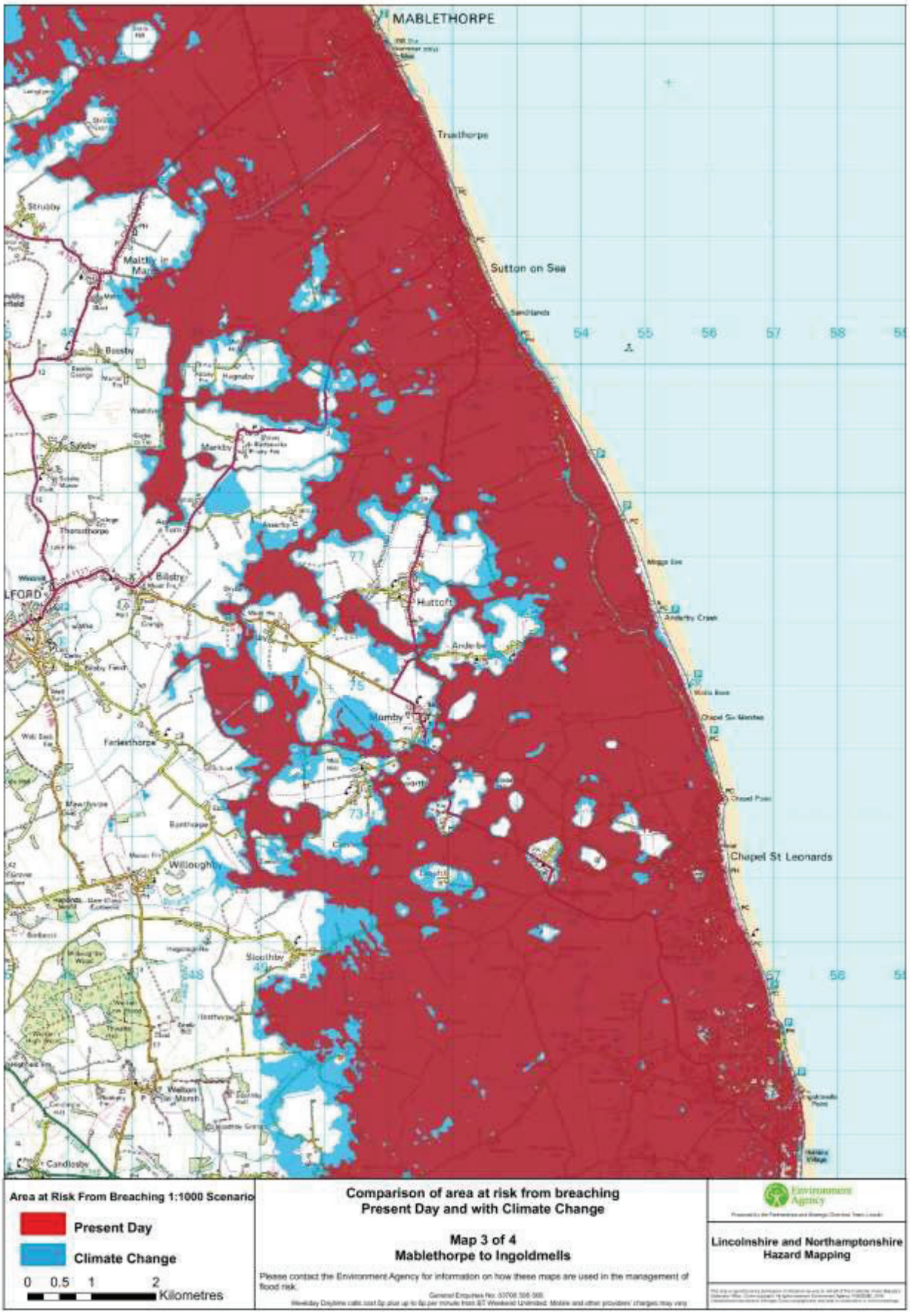
MAP 3 Present Day Flood Risk – Donna Nook northwards



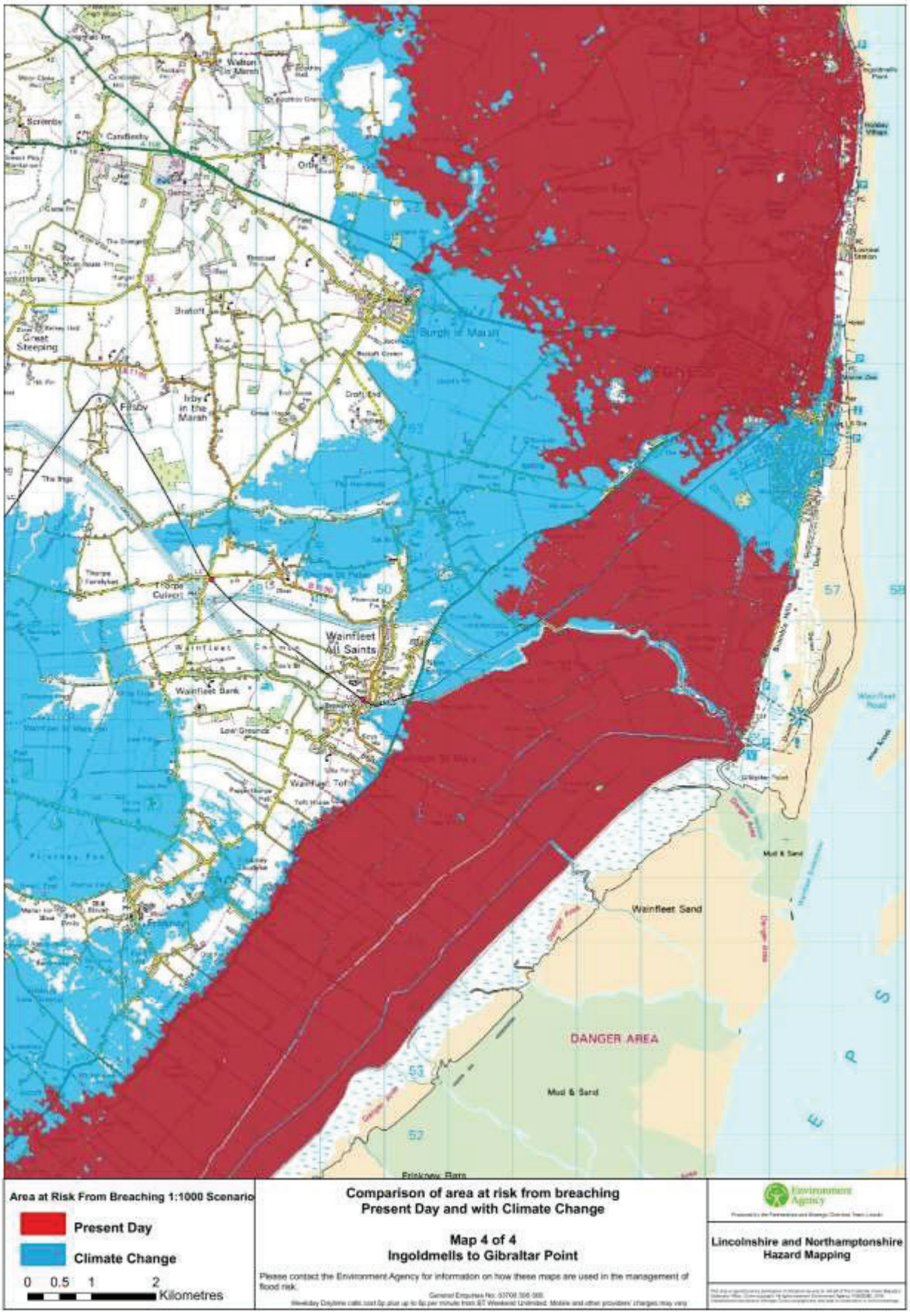
MAP 4 Present Day Flood Risk Donna Nook to Trusthorpe



MAP 5 Present Day Flood Risk – Mablethorpe to Ingoldmells



MAP 6 Present Day Flood Risk Ingoldmells to Friskney



PART TWO - STRATEGIC ASSESSMENT OF TOWNS AND LARGE VILLAGES

1.0 This section contains extracts from the Environment Agency Flood Zone maps for each of the inland towns and large villages identified in the Local Plan along with a brief outline of the key features.

1.1 The Environment Agency is continuously updating its information on flood risk areas and whilst these maps indicate their current extent, the latest and more detailed information, including the surface water flood map should be obtained from the Agency's website.

http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=floodmap&layerGroups=default&lang=_e&ep=map&scale=7&x=531500&y=181500

1.2 Also shown on the maps is the broad location of historic flooding events. Information on the cause and extent of these events is not included in the SFRA nor, what, if any remedial action/improvements has occurred since. That information ma, however be available from the relevant authorities (ie IDB, EA, LLFA).

ALFORD

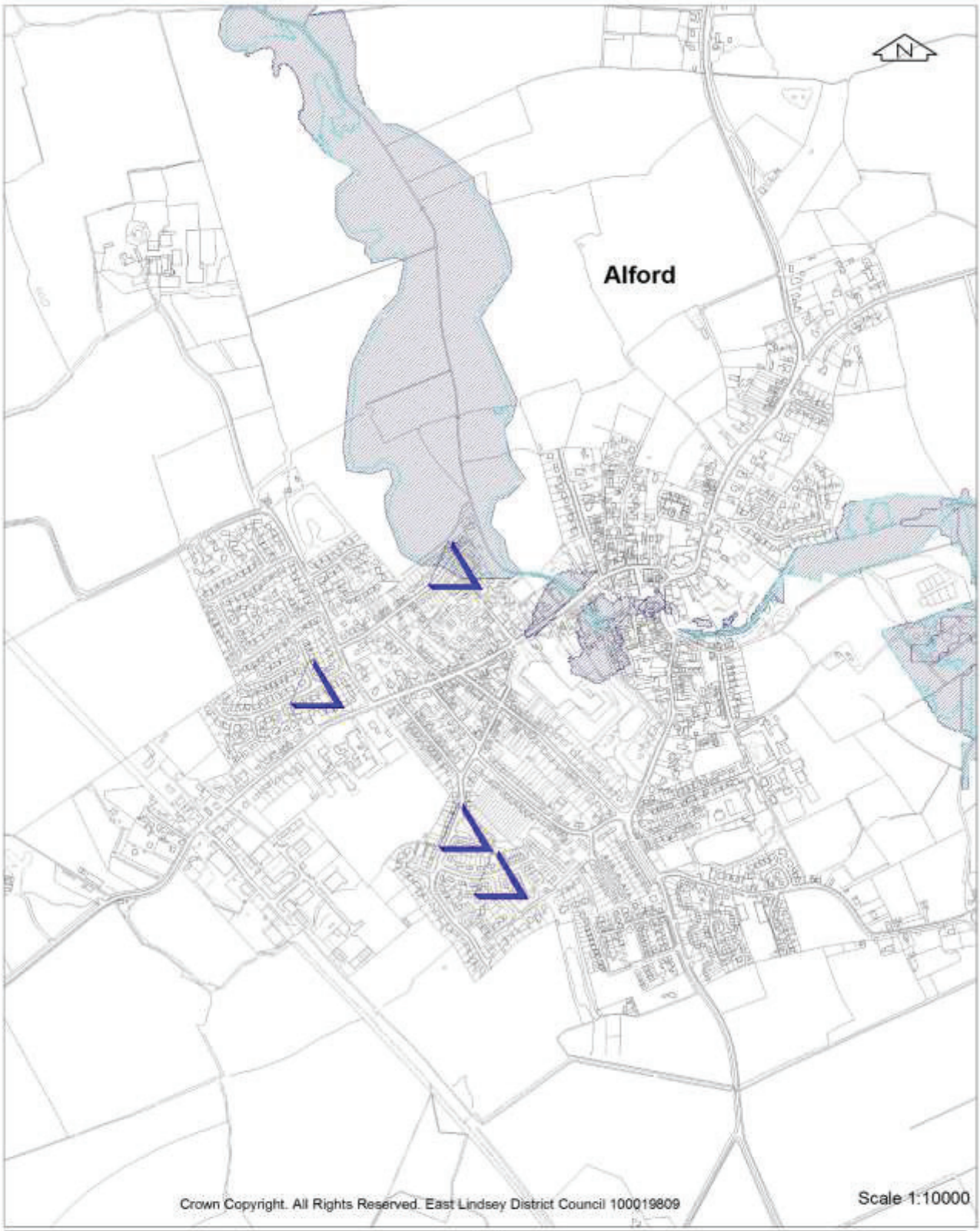
As the Map shows, the main threat of flooding to Alford originates from the Wold Grift Drain that flows south through the centre of the town and then eastwards towards the coast.

The areas identified as being at risk are:-

- Parts of Christopher Close,
- The north side of West Street where the drain is culverted beneath the road.
- The area to the south of West St where the Wold Grift and Mill Rundle drain meet, and;
- Parts of South Market Place.

Fluvial flood risk is therefore likely to have a limited impact on the town and the choice of development sites outside the areas of risk is not unduly compromised.

The map also shows that historically, there has been some flooding from 'other sources' elsewhere in the town. This was a consequence of unusually high rainfall in 2007 and, although there is no evidence to show that there is a continuing problem in those locations it indicates that further investigation using the flood surface mapping is necessary.



Key

Historic Flooding Incidents Flood Zone 2 (2016) Flood Zone 3 (2016)

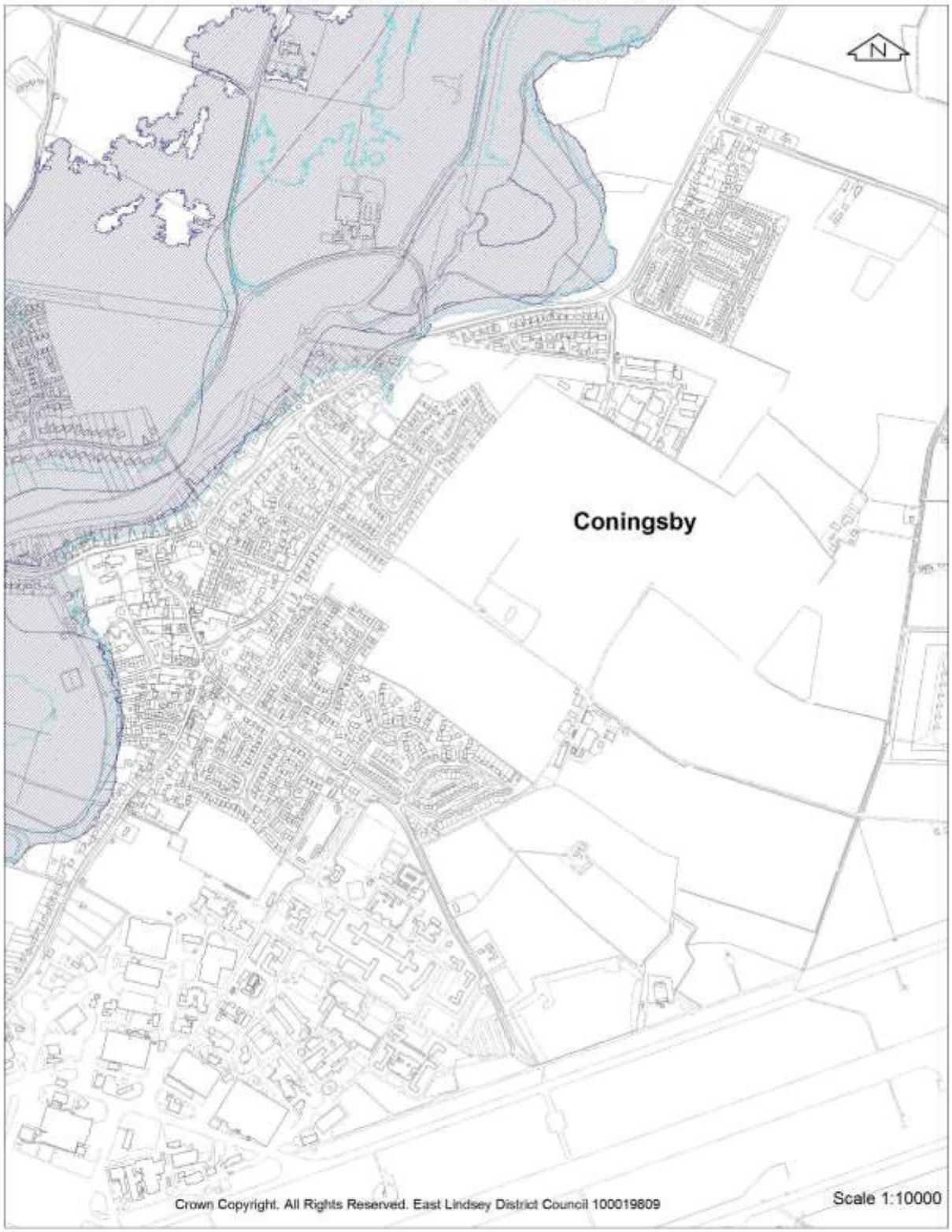
CONINGSBY & TATTERSHALL

The principle threat of flooding in Coningsby and Tattershall emanates from the R. Witham a mile to the east and the River Bain.

The Bain flows west along the northern edge of Coningsby towards Tattershall before joining the Witham and forms a natural constraint for development to the north and west, of Coningsby.

There are no records of historical flooding identified in Coningsby however, the 2005 SFRA identified a potential risk of flooding from a series of drains in the south east of the town. Any development in that area will need to be accompanied by an independent Flood Risk Assessment that addresses these issues taking account of the information in the Environment Agency Surface Water Maps.

Access to Coningsby from the west (Tattershall) is also identified as a potential issue by that assessment, however access along the A153 to Horncastle is unaffected.



Key

Historic Flooding Incidents | Flood Zone 2 (2016) | Flood Zone 3 (2016)

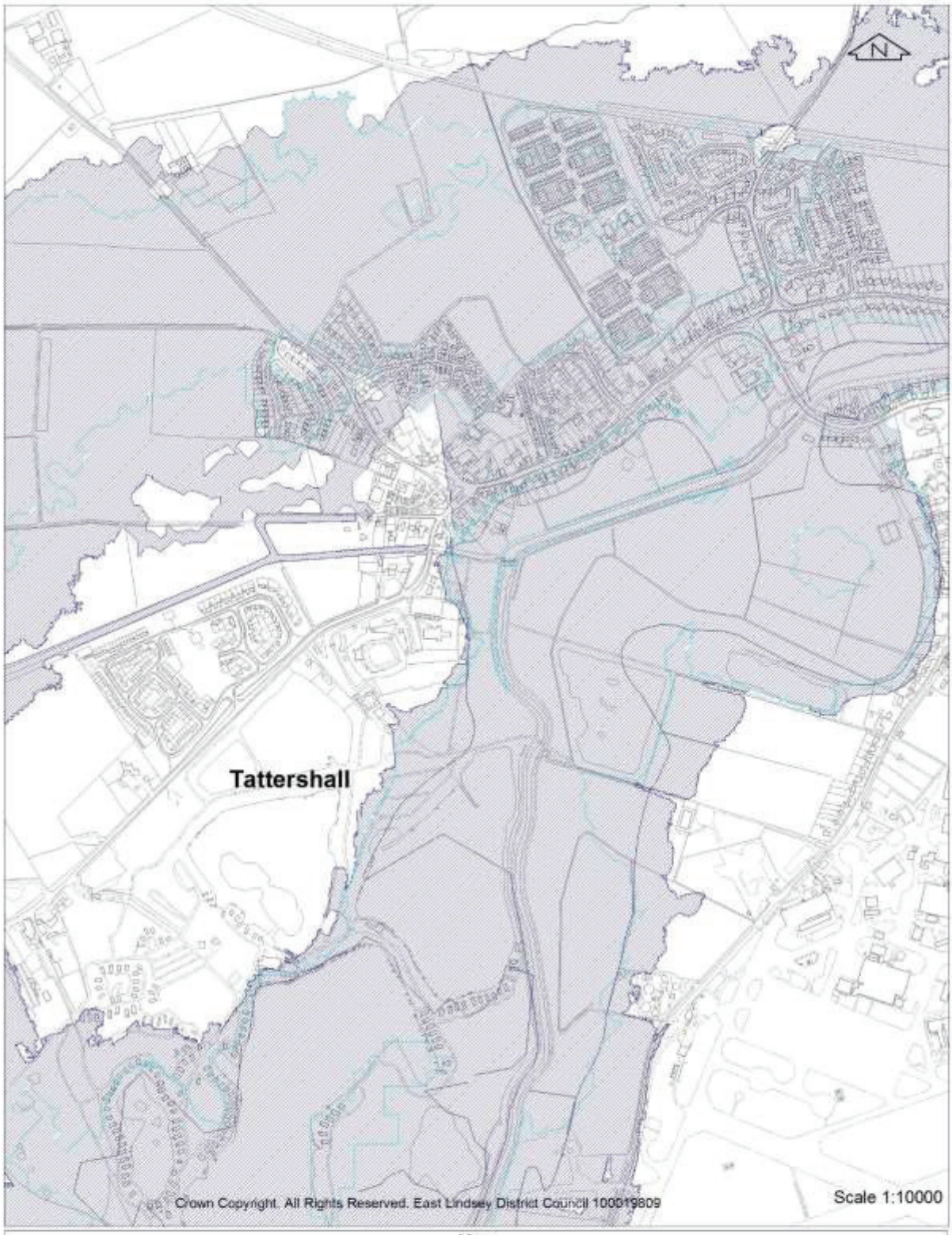
TATTERSHALL

The majority of development in Tattershall lies to the north of the River Bain and a significant part is located in the area identified as being at risk. That risk is compounded by the potential threat from flooding associated with the River Witham some 2km to the west.

As a consequence the opportunities for further development in the confines of the town are significantly constrained, and any development around the core of the village will require a detailed Flood Risk Assessment including evidence from the Surface Water Flood Maps.

There is no record of flooding from other sources in Tattershall.

The flood zone maps suggest that access through the town may be constrained in the event of severe flooding.



Key

Historic Flooding Incidents Flood Zone 2 (2016) Flood Zone 3 (2016)

HORNCASTLE

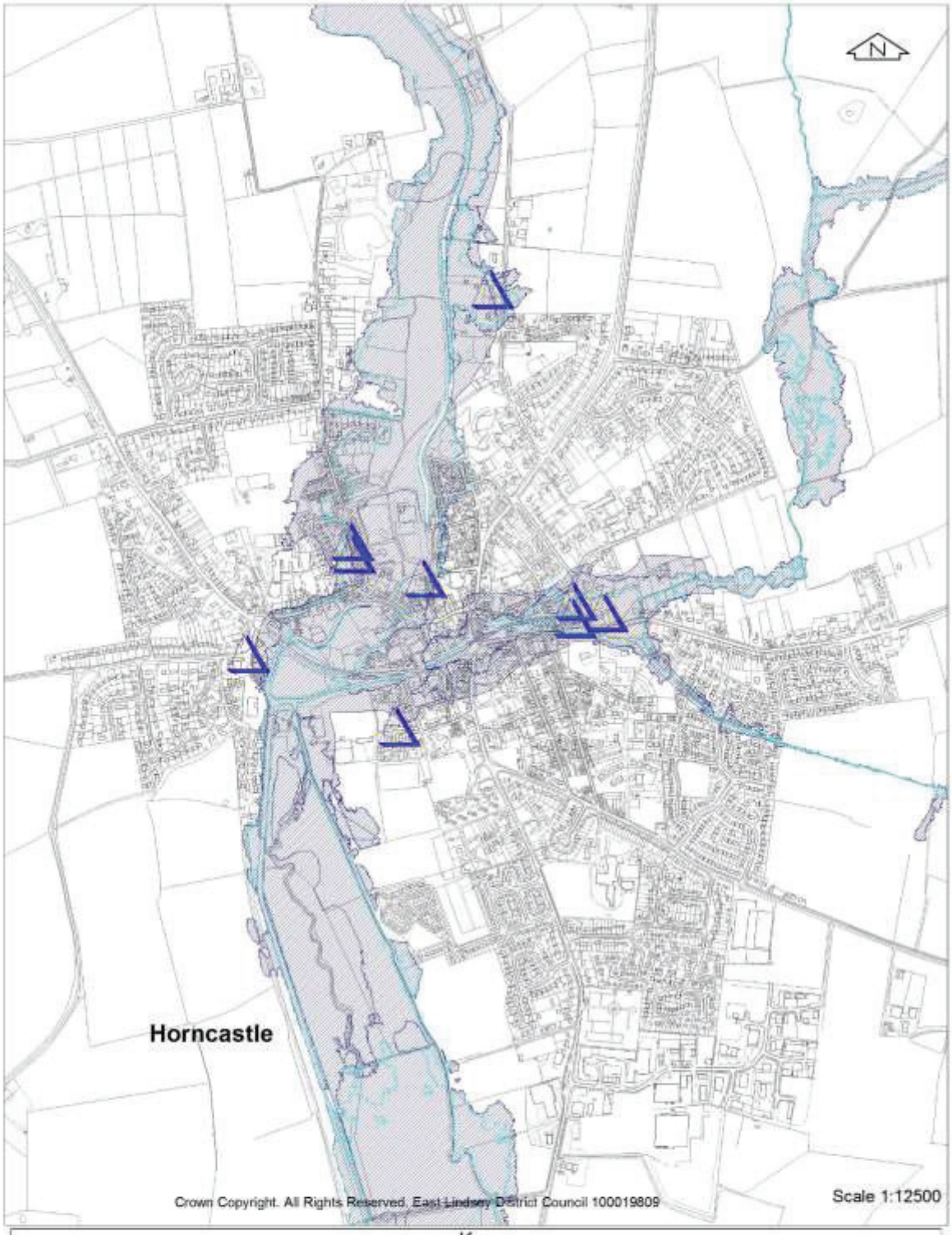
As the map shows, flood risk through the centre of Horncastle follows the line of the River Bain and River Waring rivers. The Bain runs through the town centre following a north – south axis, and joining with the Waring when they feed the canal as well as the old river. The rivers form part of the natural drainage for the area between the Wolds and the River Witham.

The majority of development in the town occupies higher ground away from the river basins and the main areas at risk are located in the older parts of the town at:-

- East St and Banks Road
- Parts of Cagthorpe
- Bridge St and West St
- Prospect St
- Watermill Road and St Lawrence St

A number of these locations (see map) have been affected by flooding in recent years and a flood alleviation scheme involving a partnership between the EA, the District and County Councils has recently been completed and should help to prevent future events.

The map also shows there are a several locations where fluvial flood risk is not an issue and, where subject to further assessment, including an examination of flooding from other sources, development might be considered.



Key

Historic Flooding Incidents Flood Zone 2 (2016) Flood Zone 3 (2016)

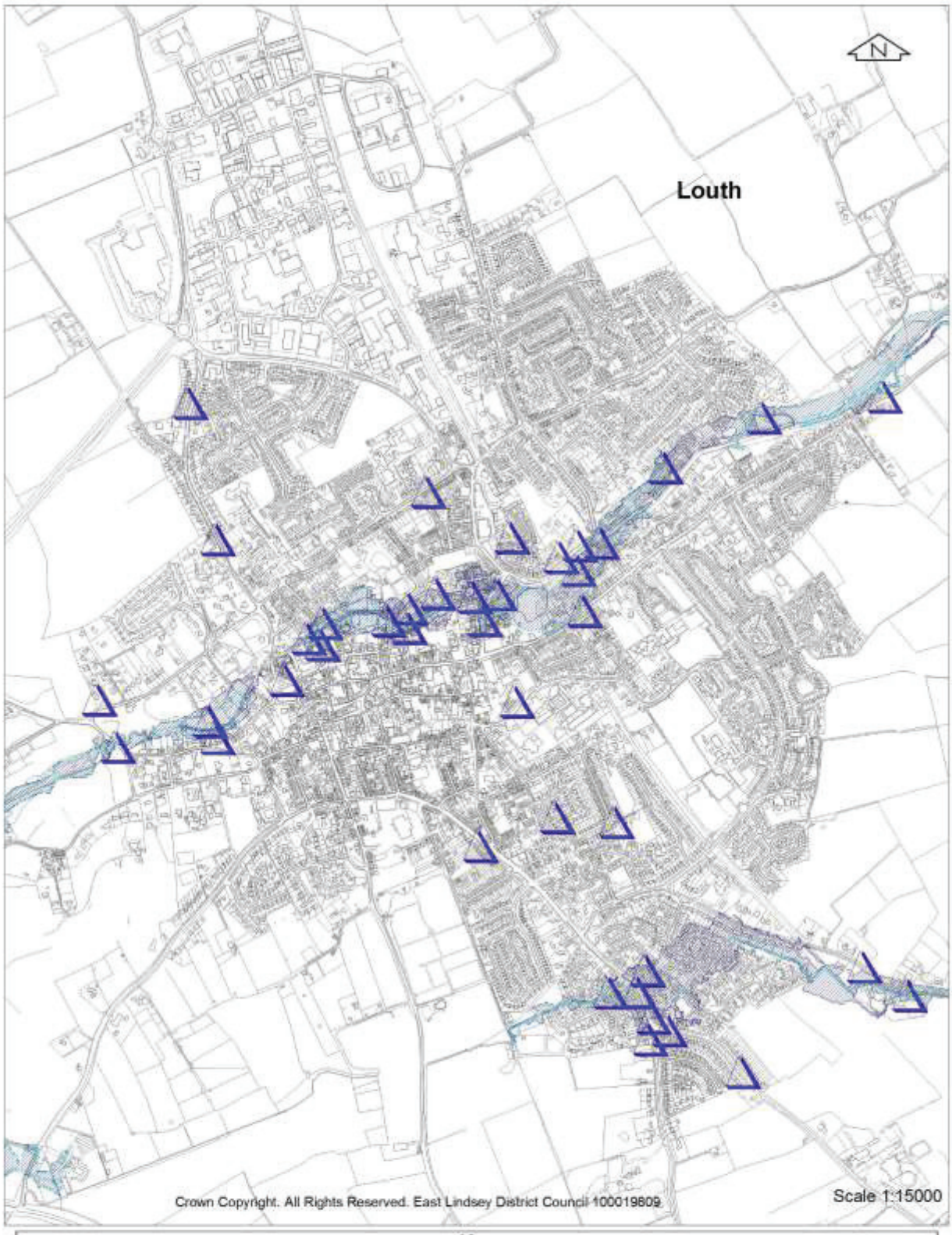
LOUTH

The main risk of flooding in Louth is identified as being fluvial and emanating from the R. Lud. However, as the assessment map shows, in addition to the Lud there is also a problem related to the Stewton Beck to the south east of the town which is linked to surface water run-off in the event of flash flooding and the topography of the area surrounding the beck.

In addition to fluvial events there is also evidence of surface water issues around the town in a number of locations. The extent of development around the Lud means there are limited opportunities for significant new proposals and major new developments are likely to be located in areas of little or no risk as identified by the flood zone maps.

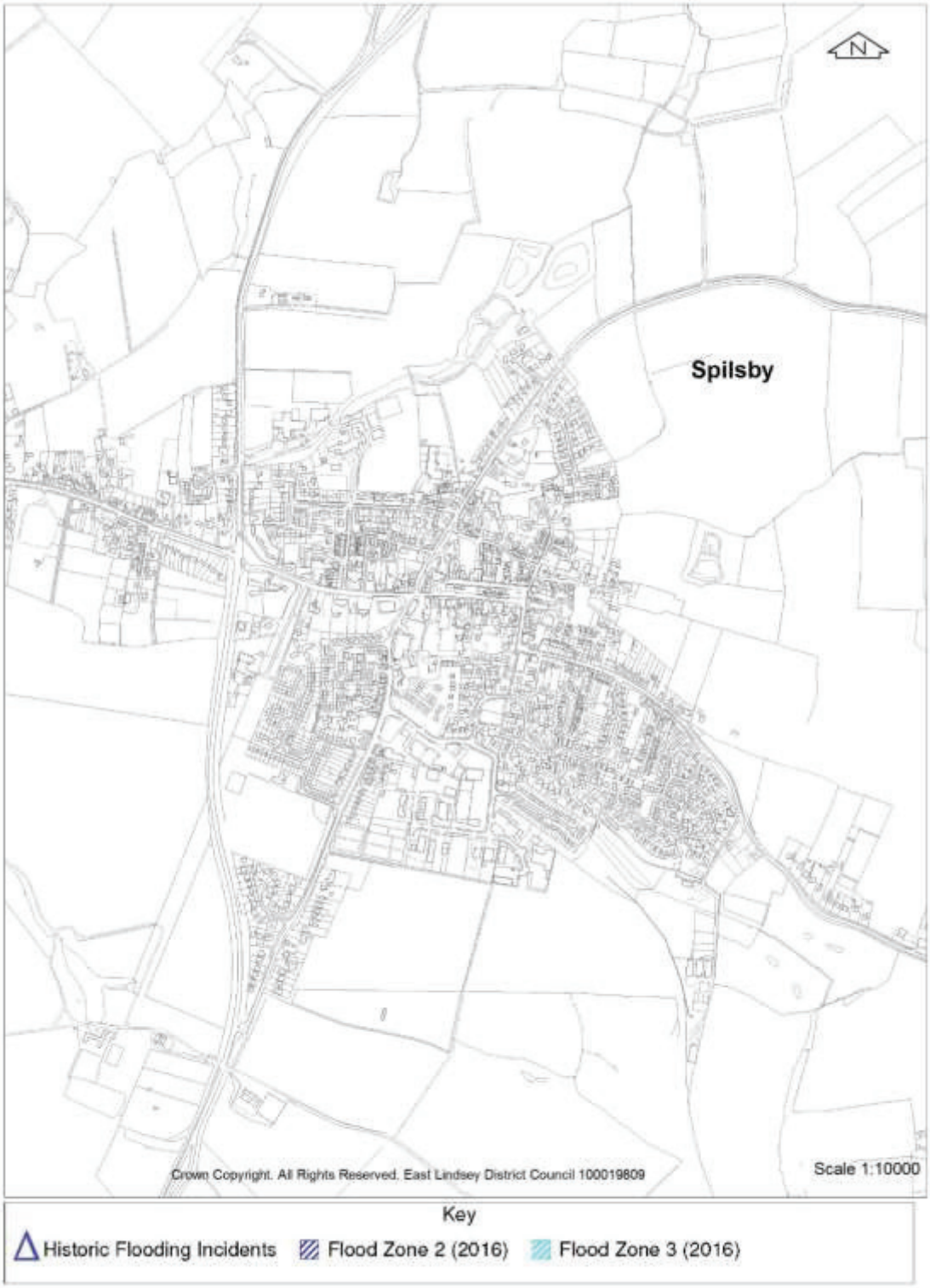
Notwithstanding this, detailed flood risk assessments will be required to address surface water issues in all locations and these should be appropriate to the scale of development and include an assessment of the capacity of existing drainage networks.

The Council, along with the EA, the County and Town Council are working together to bring forward a flood storage scheme which is intended to alleviate problems related to the Lud. Recent works have also been undertaken to improve problems associated with the Stewton Beck including run-off from surrounding fields which should mitigate against localised problems encountered in the past in that area.


N
Louth
Crown Copyright. All Rights Reserved. East Lindsey District Council 100019809
Scale 1:15000
Key
Historic Flooding Incidents
Flood Zone 2 (2016)
Flood Zone 3 (2016)

SPILSBY

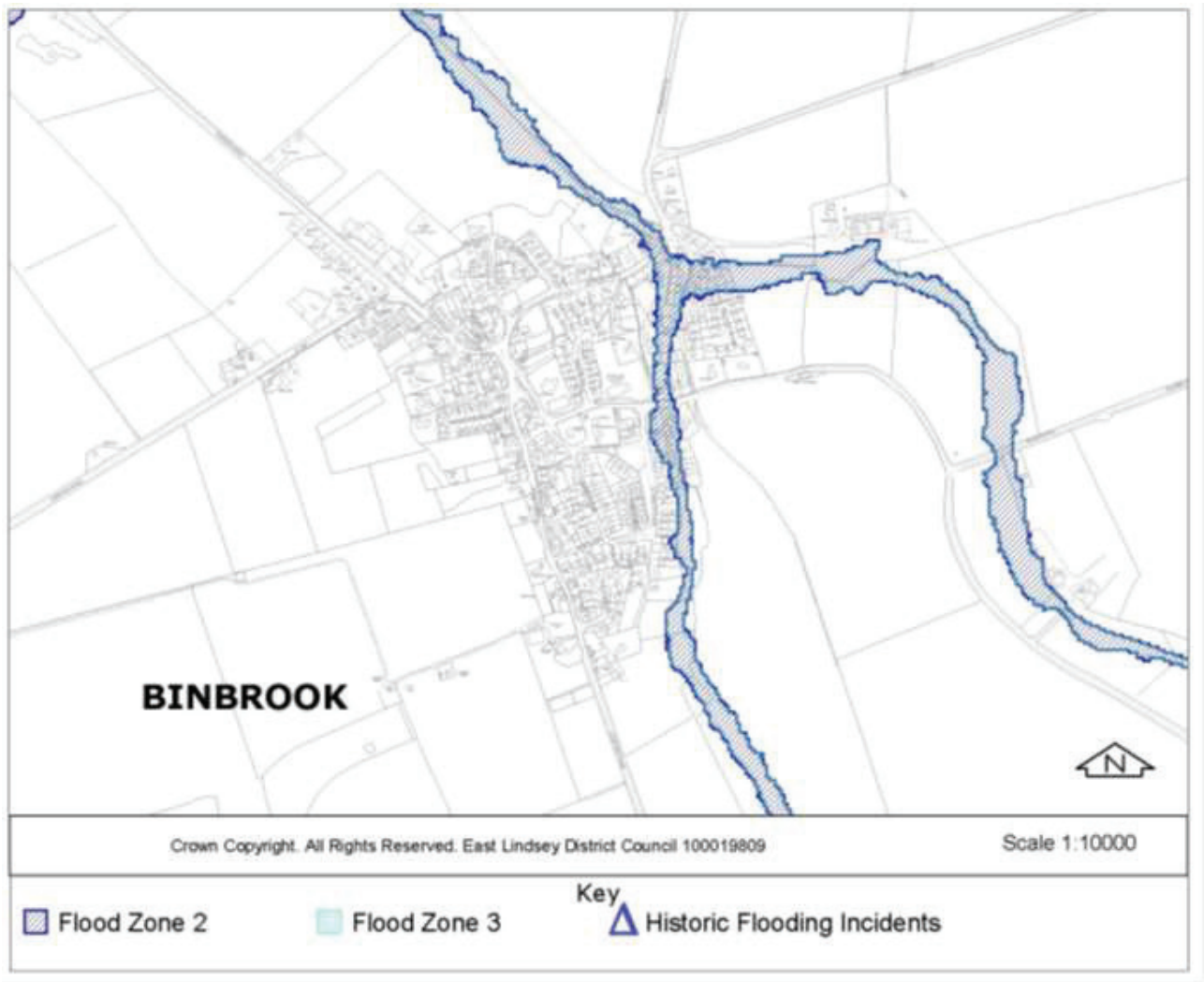
There is little or no flood risk identified at Spilsby and no recent evidence of flooding from other sources.



LARGE VILLAGES

BINBROOK

The Flood Zone Maps show that the area at risk of flooding in Binbrook is limited to a small area of the village and there is no record of historical events in the area. The Council's SFRA (2005) indicates that notwithstanding this, detailed FRA will be required to investigate surface water issues. There are no access /egress issues identified for the village.



Binbrook

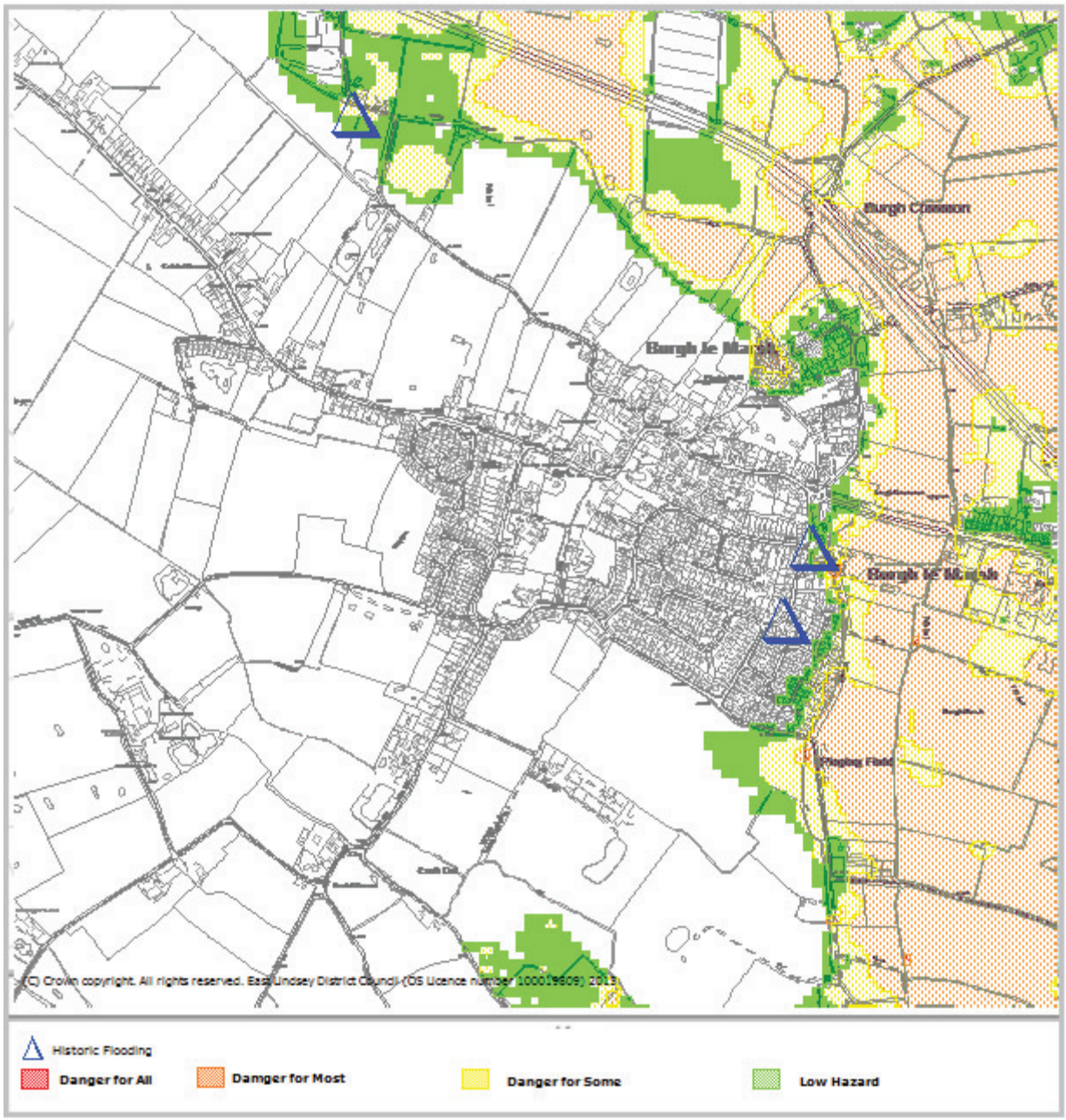
The Flood Zone Maps show that the area at risk of flooding in Binbrook is limited to a small area of the village and there is no record of historical events in the area. The Council's SFRA (2005) indicates that notwithstanding this, detailed FRA will be required to investigate surface water issues. There are no access /egress issues identified for the village.

BURGH LE MARSH

As the map indicates Burgh le Marsh lies at the limit of the Flood Hazard Areas and properties at the eastern edge of the village are within the areas identified as being of 'Danger for Some' and where there is a 'Low Hazard'.

There is some evidence of localised historic flooding to the east of the village away from any potential growth areas. However, the SFRA (2005) indicate the need to investigate the potential of localised flooding arising from the network of smaller drains, and local issues in the area have also been identified by the Lindsey Marsh IDB. As a consequence, surface water disposal will need to be considered as part of any development proposals.

Access to the village is provided to the west via the old A158.



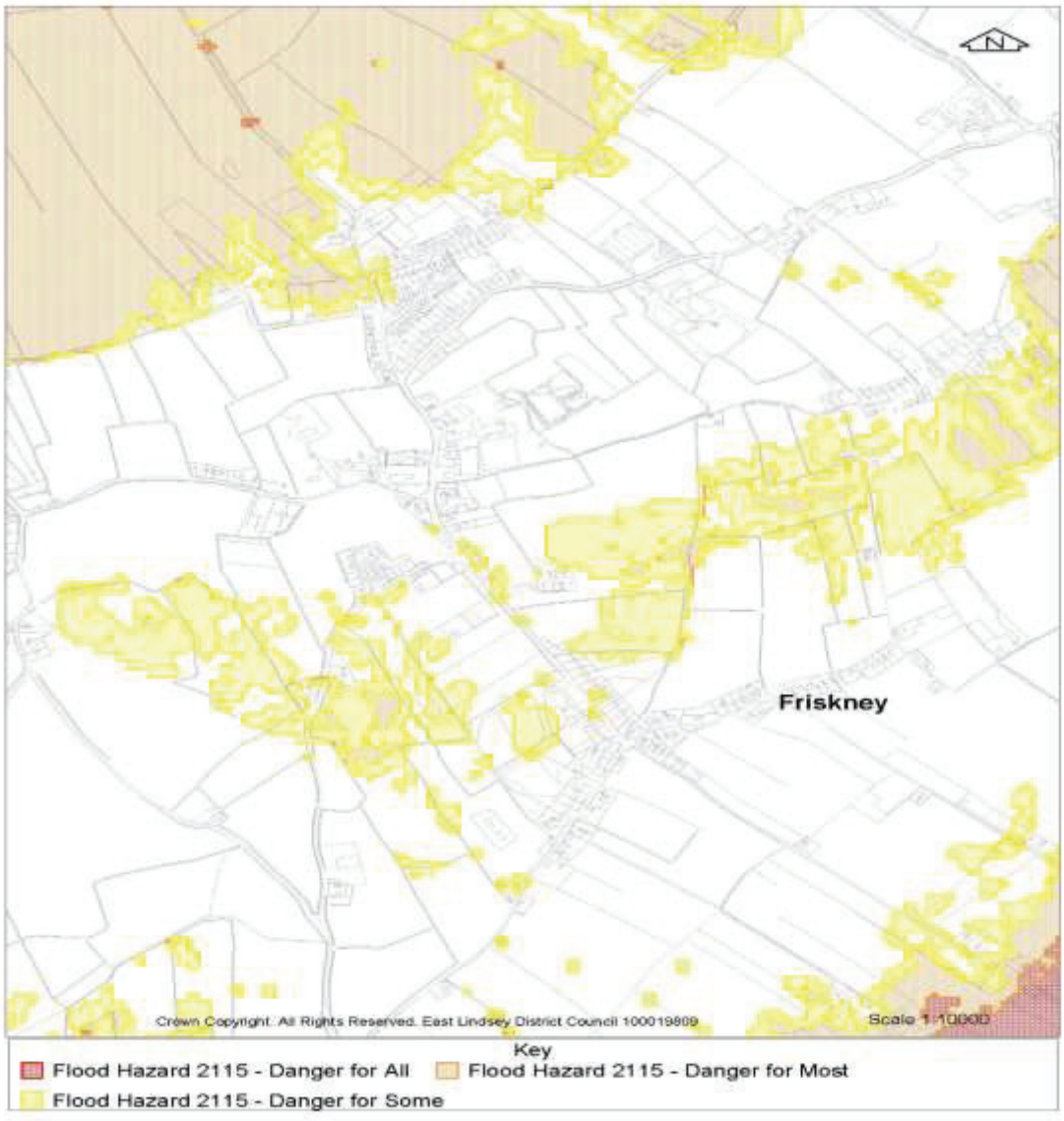
FRISKNEY

Friskney lies on the edge of, and surrounded by the Flood Hazard zone. The bulk of development in the village is outside the area identified as being at risk in the event of a breach in the sea defences.

The EA's Flood Zone map indicates that parts of the village are within flood zone 2 and is potentially at risk of flooding from a fluvial/ tidal event, but does not specify which the likely source is.

Accordingly, the capacity of Friskney to accommodate further development will require further assessment on a site by site basis which is beyond the scope of this study.

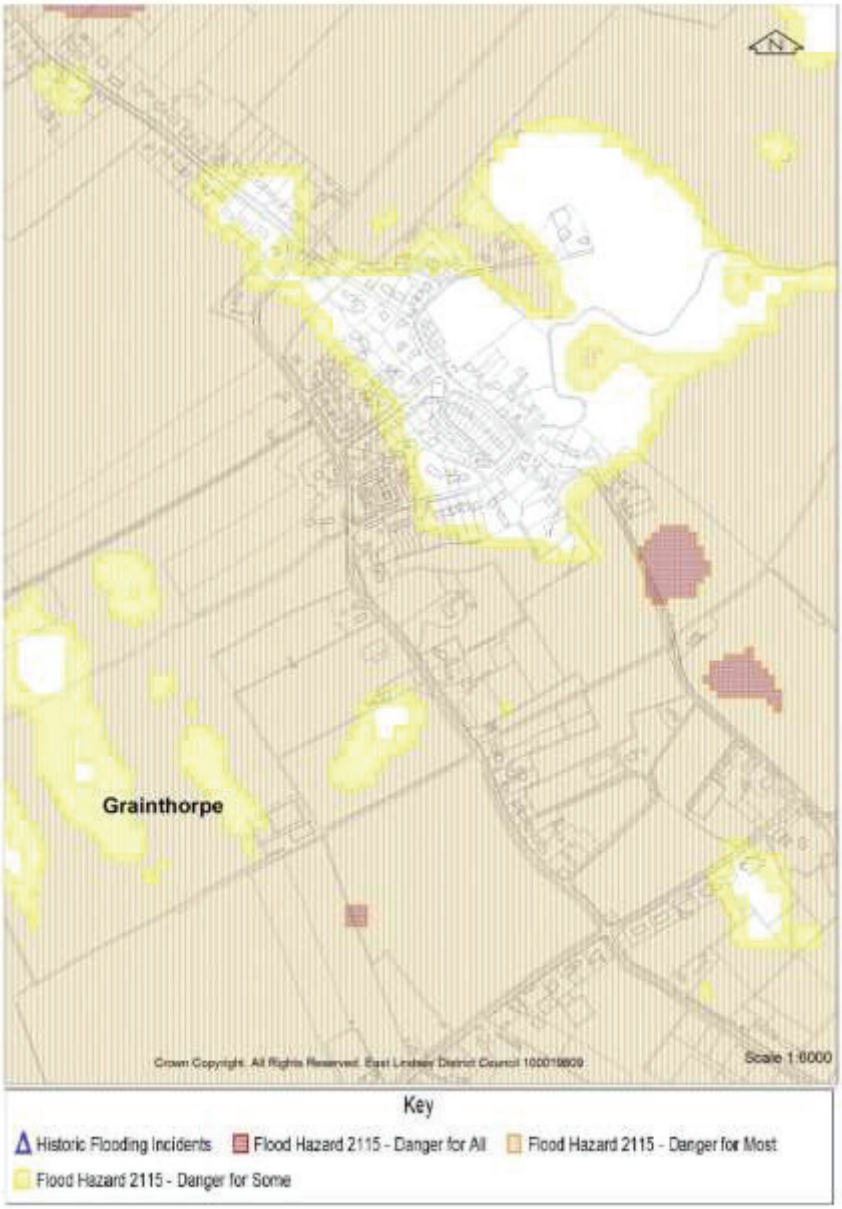
Some properties in Friskney have experienced internal flooding due to surface water run-off following extreme events (Witham 4th IDB).



GRAINTHORPE

As can be seen the threat of flooding (from the coast) is severe at Grainthorpe and will severely impact on the capacity of the village to accommodate additional development without endangering life or property. In addition to the risk of flooding it is clear that a severe event would also compromise access to and from the village.

In 2013 the Lindsey Marsh Drainage Board undertook a Flood Alleviation Scheme in response to the flooding which occurred to properties in 2007. The scheme involved channel widening to accommodate increased flows. This reduced the likelihood of flooding for twenty properties and for nine properties has reduced the risk of flooding from a 1 in 20 year event to a 1 in 200 year event, therefore also providing a general improvement in flood protection for the village.



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GRIMOLDBY & MANBY

There is no identified risk of fluvial or tidal flooding in the defined areas of Grimoldby and Manby.

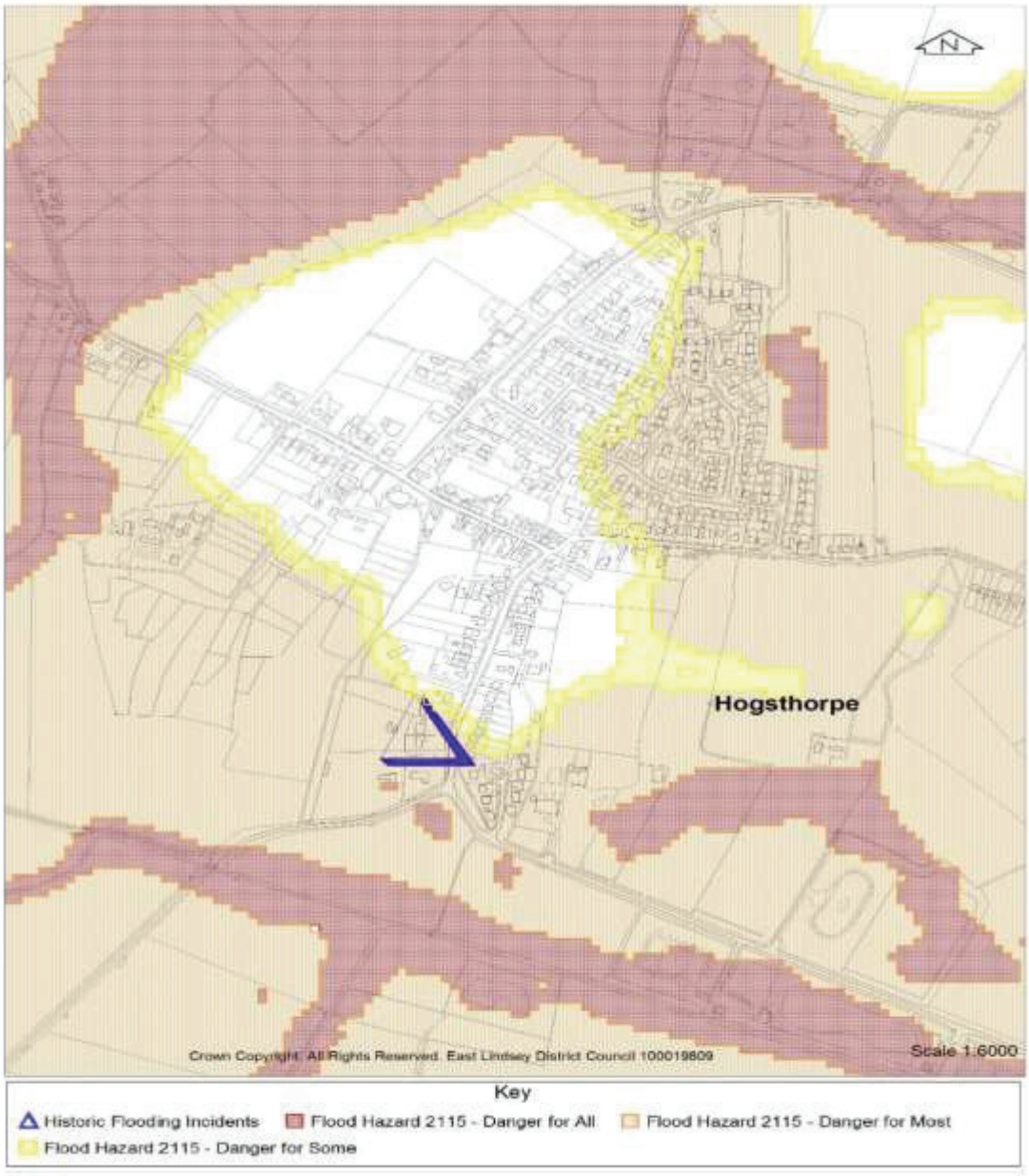
However as the map shows there is historical evidence of flooding from other sources associated with the floods of 2007 and the Lindsey Marsh IDB has identified drainage issues locally. Accordingly, there remains a need for any future development to be accompanied by an FRA, which assesses the potential for flooding from other sources.

HOGSTHORPE

Most of Hogsthorpe is at risk from flooding as a consequence of tidal inundation. Part of the village stands on higher ground and there may be some potential for development provided other requirements are met.

There is some evidence of flooding from other sources recorded to the south of the village and the IDB is aware of drainage issues in the area.

In the event of severe flooding there is a possibility that access to Hogsthorpe will be affected.



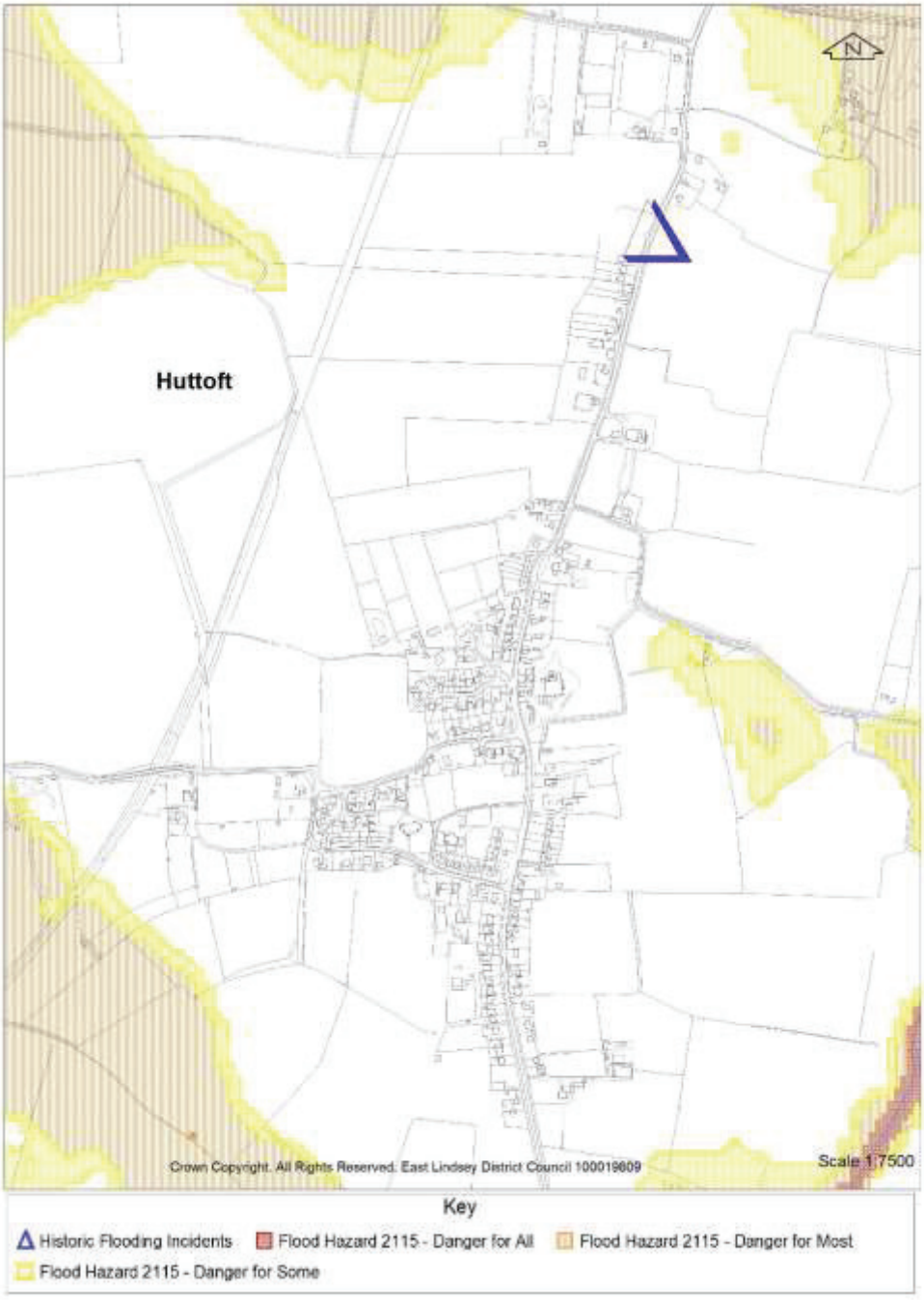
HOLTON LE CLAY

As the map indicates there is no modelled risk of fluvial flood at Holton le Clay and only limited evidence of flooding from other sources. However, the Lindsey Marsh IDB is aware of drainage issues in the area and individual developments will require FRA's to assess the potential for surface water flooding and the impact of additional development on existing drainage systems.

HUTTOFT

Although Huttoft lies close to the coast much of the village stands on elevated land and consequently, the risk of flooding from a tidal event is limited to only a small part of the village.

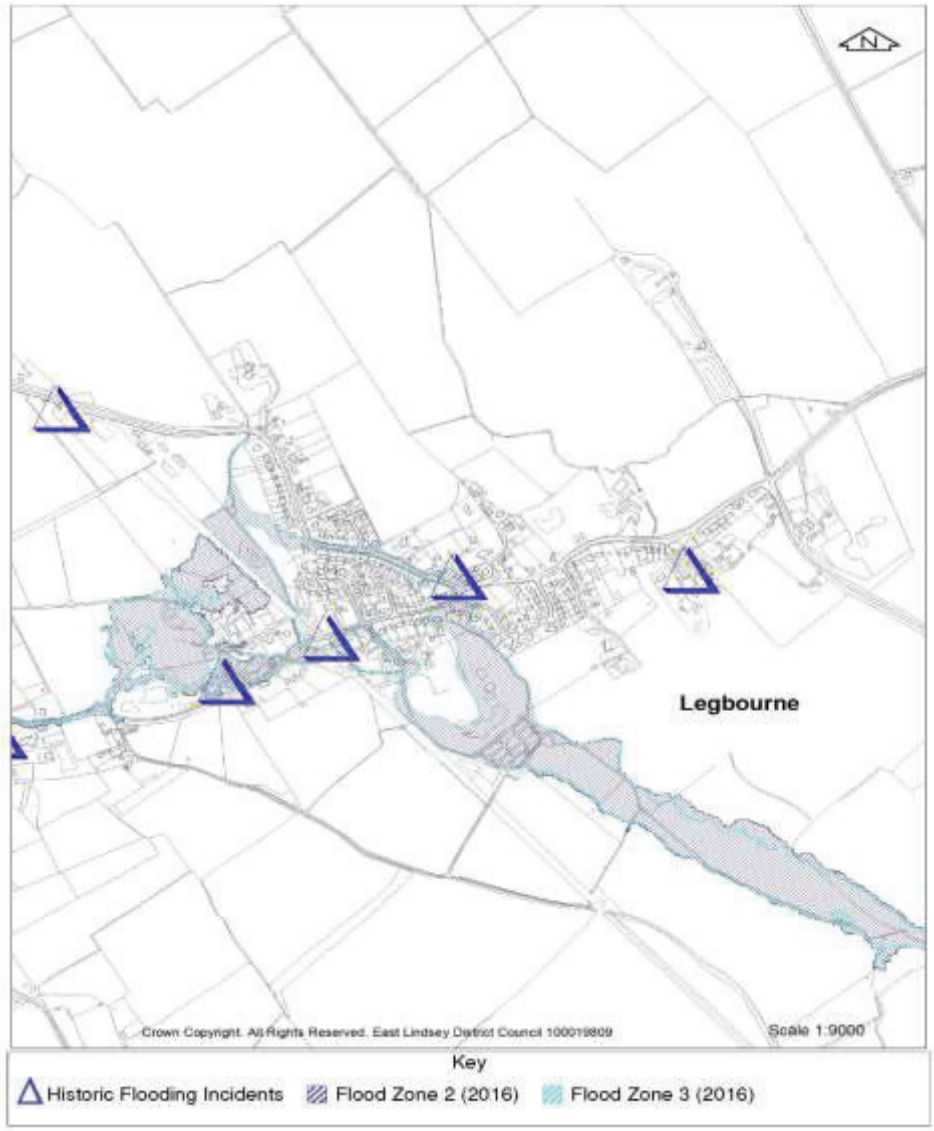
The only incidence of flooding from other sources (recorded in 2007) occurred to the north of, and away from the core of the village.



LEGBOURNE

Legbourne lies at the headwaters of the Long Eau, a non-main river at this point which forms part of the Saltfleet Haven watercourse in its lower reaches. Flood risk in the village is likely to arise as a consequence of flooding from the drains which comprise the headwaters (SFRA 2005).

Flooding from other sources has occurred in the past at various locations in the village, indicating that more localised land drainage and surface water issues may exist and will need further examination as part of any development proposals.



MAREHAM LE FEN

The threat of fluvial flooding at Mareham le Fen is limited to a small area alongside Fen Lane beyond the southern limits of the village, where it is unlikely to influence future development.

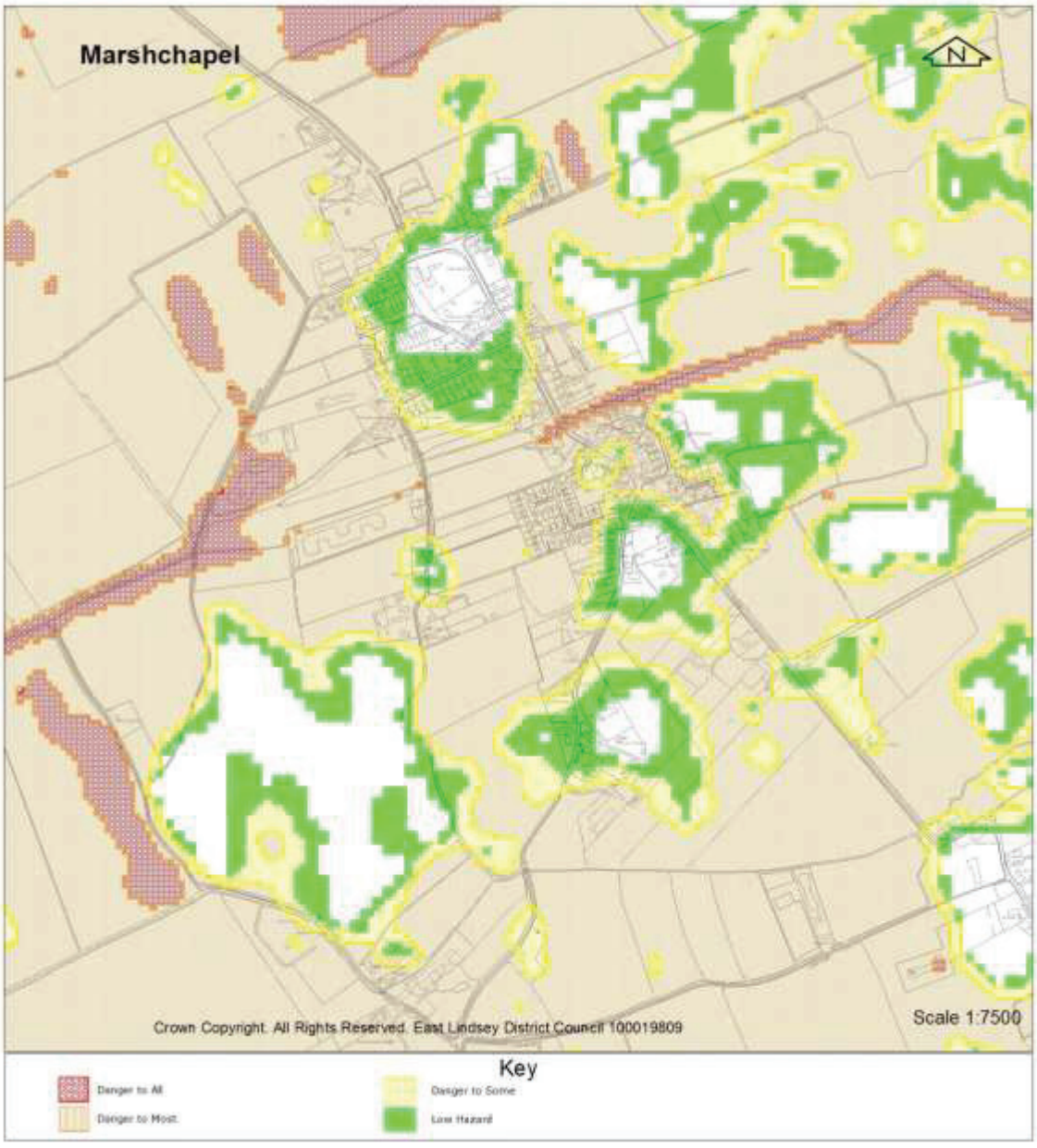
The IDB have concerns that parts of the village are not well supported in respect to provision of surface water runoff discharge opportunities and questions whether the security of outfall for new development; adding that much of the area relies on old, privately owned infrastructure, creating increased risk to both new and old properties.

There is no record of recent flooding from other sources in Mareham.

MARSHCHAPEL

Marshchapel lies about 3.5Km from the coast and the bulk of the parish lies within area categorised as 'Danger for Most' by the Flood Hazard Maps. As a consequence very few areas have the potential for residential development. In addition, the Lindsey Marsh IDB has identified a potential requirement for new development schemes to include drainage improvements.

Parts of the village also lie on the edge of the Covenham Reservoir floodplain and, whilst the probability of breaching is considered low, due consideration should be given to that risk.



NORTH THORESBY

North Thoresby lies between the Old Fleet Drain (north) and Black Leg Drain (south). The drains rise to the east of the village but both are some distance from its core and there is no identified risk of fluvial flooding from them.

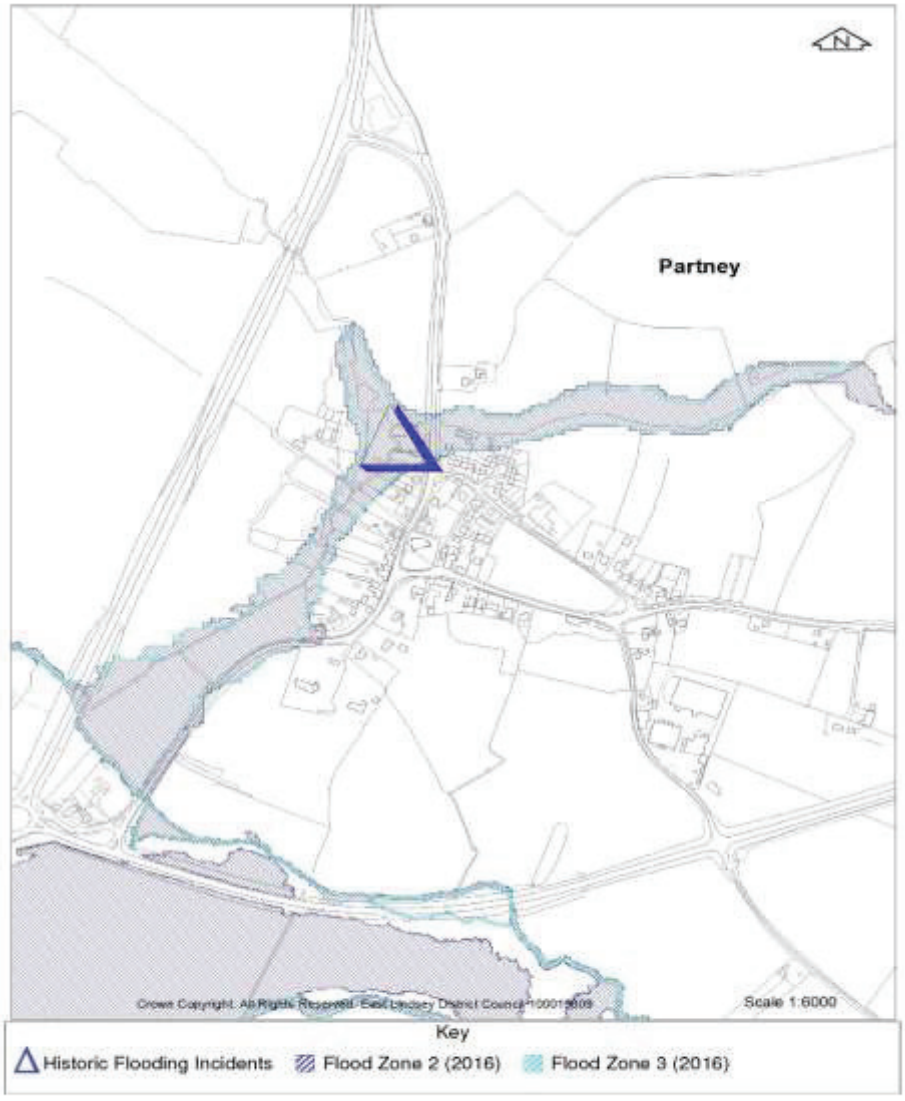
Only a single incident of flooding from other sources has been recorded in recent years.

PARTNEY

The main risk of flooding in Partney comes from the small drain that flows east to west across the north of the village and then, on the west of the village it runs southwards before feeding into the River Lymn. Any development should be located outside of the flood zone.

There is some evidence of flooding from other sources where the drain crosses the old main road and individual proposals will need to investigate potential risk.

It is anticipated that access to the village will not be constrained in the event of flooding.



SIBSEY

Sibsey lies between the Hobhole (east) and Stonebridge (west) main drains that are key parts of the network serving the Fens. The village is outside the area at risk of flooding from these watercourses and fluvial flooding is not perceived as an issue for its future development.

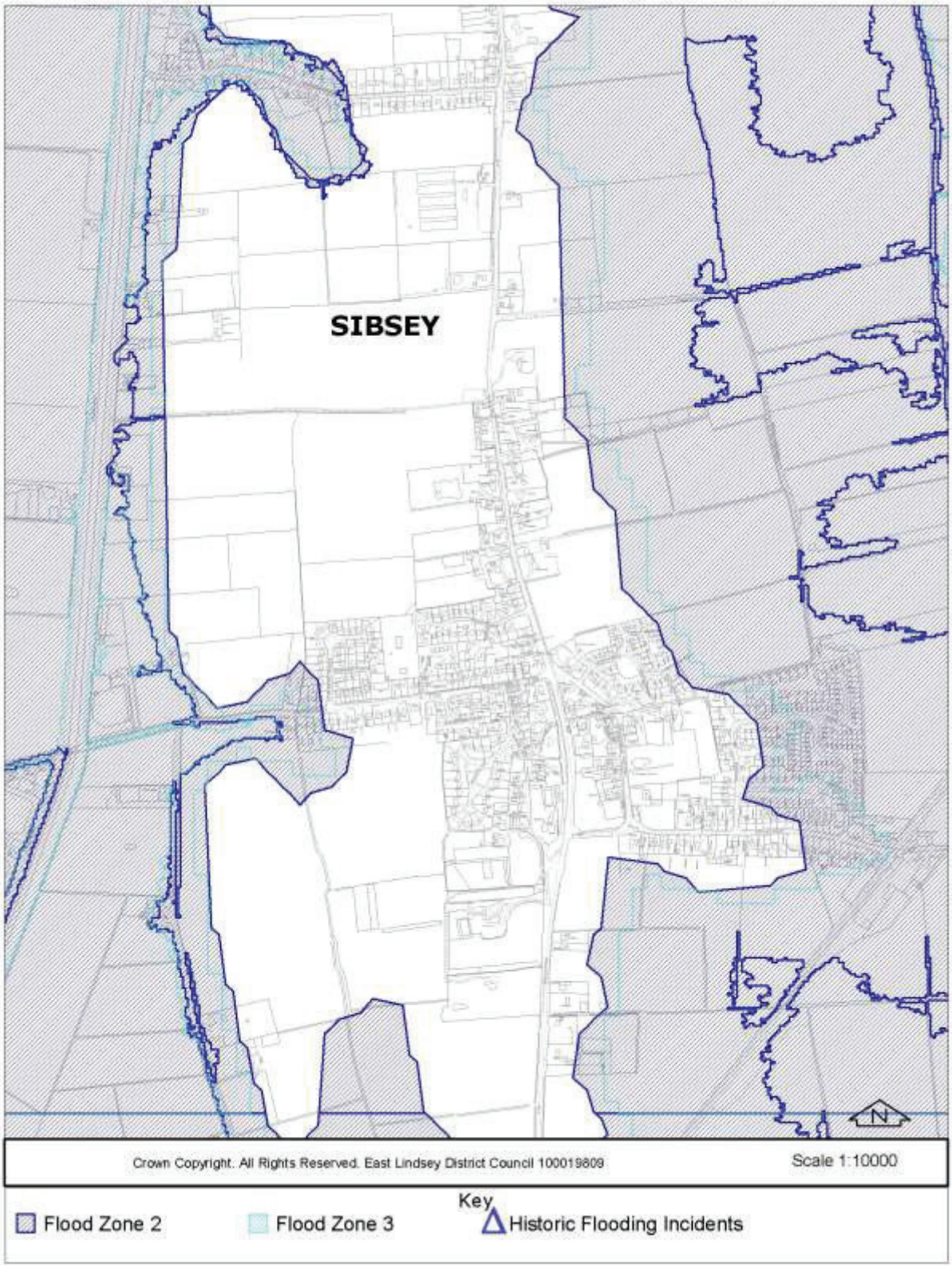
The 2005 SFRA identified the potential for flooding in the event of breaching of the Catchwater and Stonebridge Drains where they join at a point to the north of the village. It concludes that, because the embankments are low breaching is unlikely and that taking into account the effect of climate change (50 years), peak water levels are below the levels of the surrounding ground.

There are numerous smaller sewers (drains) locally that criss-cross the area and, the 2005 SFRA records works have been carried out to the north of the village centre to provide an 'urban' standard of protection against flooding from the local drainage network. That study also establishes the need for groundwater and local drainage issues to be addressed as part of site specific FRA's, and concerns have also been raised by the IDB in respect of surface water and groundwater problems at some sites in the village.

Sibsey is about 6 miles from the coast and lies just beyond the limit of areas deemed to be at risk of flooding in the event of tidal flooding. There is no record of recent flooding from other sources.

Key

Historic Flooding Incidents | Flood Hazard 2115 - Danger for All | Flood Hazard 2115 - Danger for Most | Flood Hazard 2115 - Danger for Some


SIBSEY
N
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Scale 1:10000
Key
Flood Zone 2
Flood Zone 3
Historic Flooding Incidents

STICKNEY

The primary risk of flooding at Stickney comes from the East Fen and West Fen Catchwater Drains that run north to south on either side of the village. However, a significant area in the core of the village, between the drains is not at risk and has the potential to meet future development need although it will constrain linear growth along Hall and Horbling Lanes.

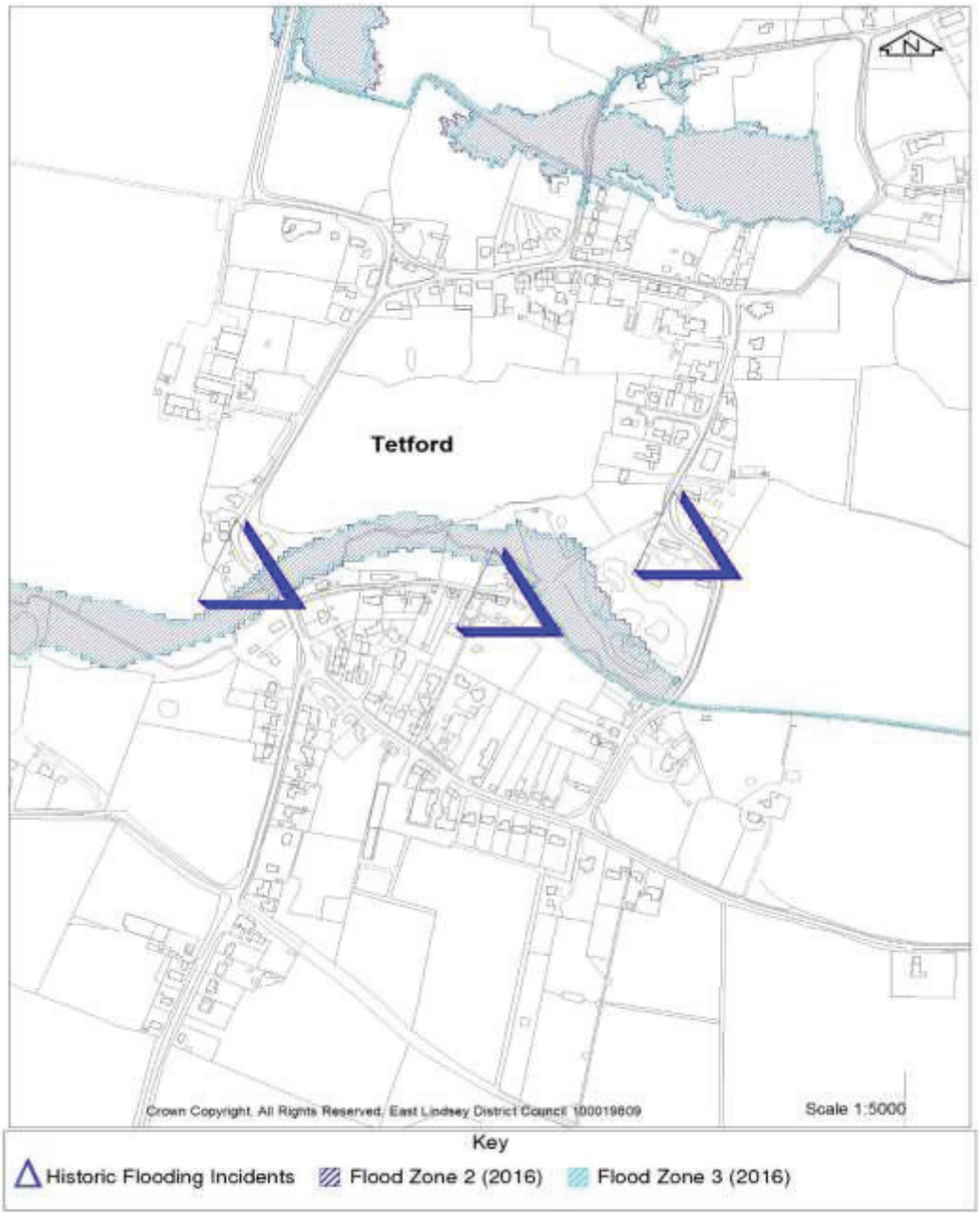
There is no evidence of significant flooding from other sources in the village, however because there is a network of drains serving the village independent FRA's will be required to assess groundwater and local drainage issues.

TETFORD

Tetford is located in the Wolds and the River Lymn, which has its source nearby, flows through the village alongside Mill Lane. The Lymn is identified as a main river downstream from the village but the area at risk from flooding in the village is minimal.

There is also a small risk of flooding arising from the Rain Beck which runs west to east across the northern edge of the village.

Some flooding from other sources has been recorded around Mill Lane (see map).



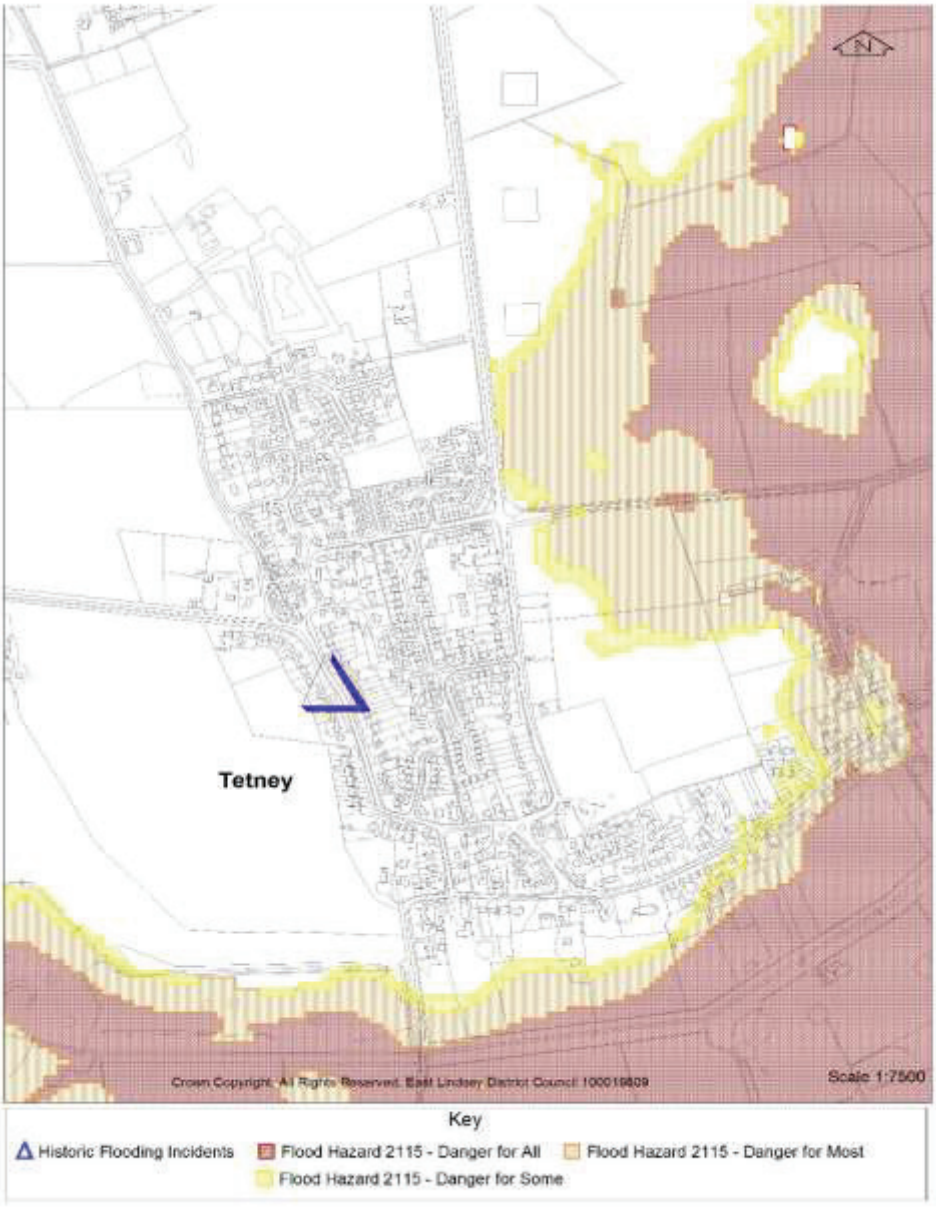
TETNEY

Tetney is less than 4 miles from the coast and, although the northern section of the coast is accreting, there is the potential for any flooding from the coast to affect the eastern edges of the village.

The Tetney Drain runs to the south of the village and is one of the principle drainage channels between the Wolds and the sea. There is a risk of some flooding to properties south of Church Lane from the drain.

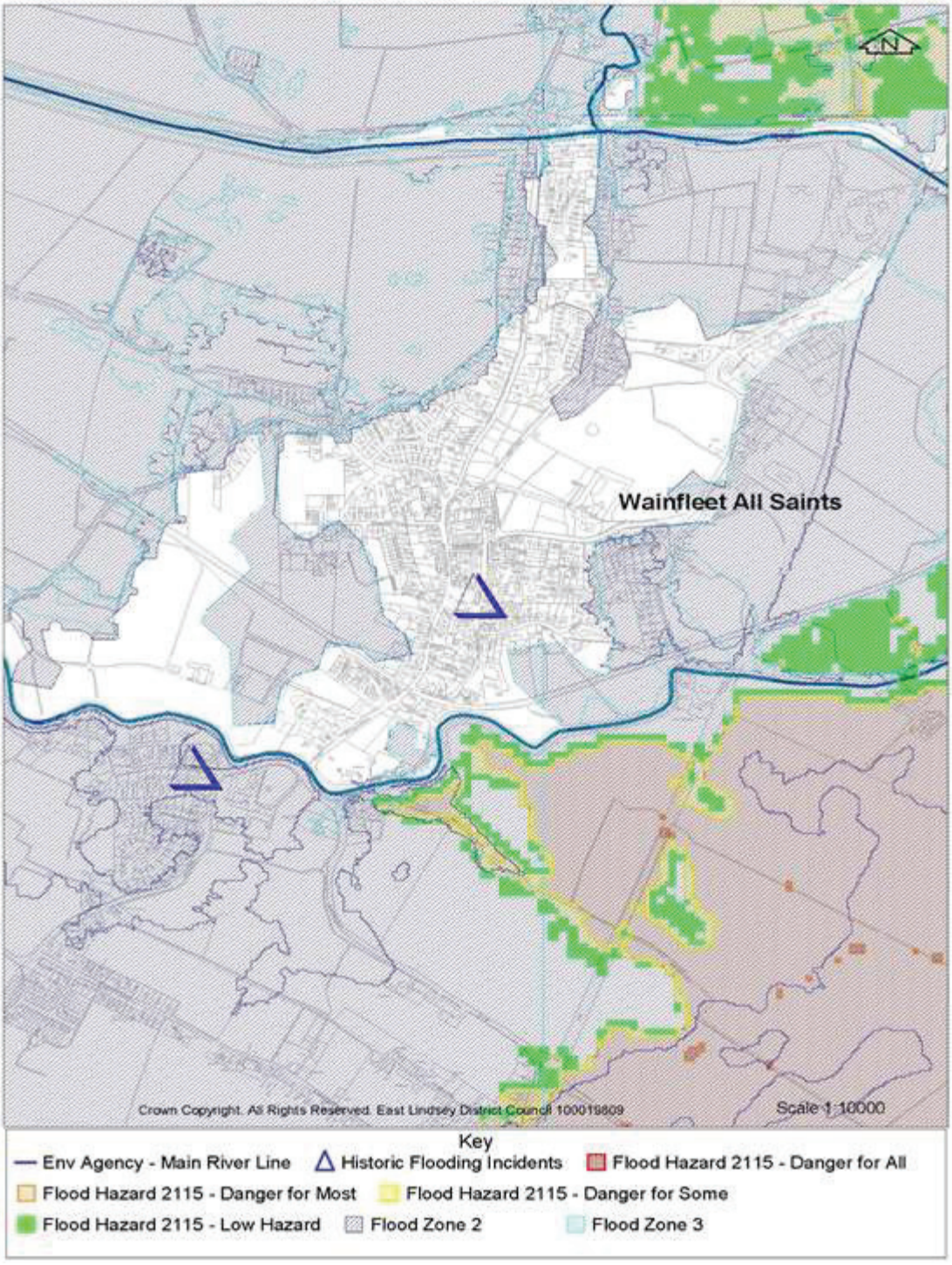
To the west of Tetney the risk of fluvial flooding is low and future development should be guided to this part.

Only one historic incident of flooding from other sources has been identified however, the Lindsey Marsh IDB advice is that drainage improvements may be required to facilitate developments.



WAINFLEET ALL SAINTS

Wainfleet All Saints lies between the River Steeping and the Wainfleet Relief Channel and about 4 ½ miles from the sea and the likely extent of flooding from both sources is shown below. The Environment Agency's Hazard Maps show that Wainfleet is not at risk of coastal flooding. However, because of the proximity of the Steeping and Relief Channel (EA main rivers) fluvial flooding remains a threat to the village and, drainage improvements may be required to facilitate future development. Recent work re-modelling the R. Steeping has been undertaken and will be included in this document once available.



WOODHALL SPA

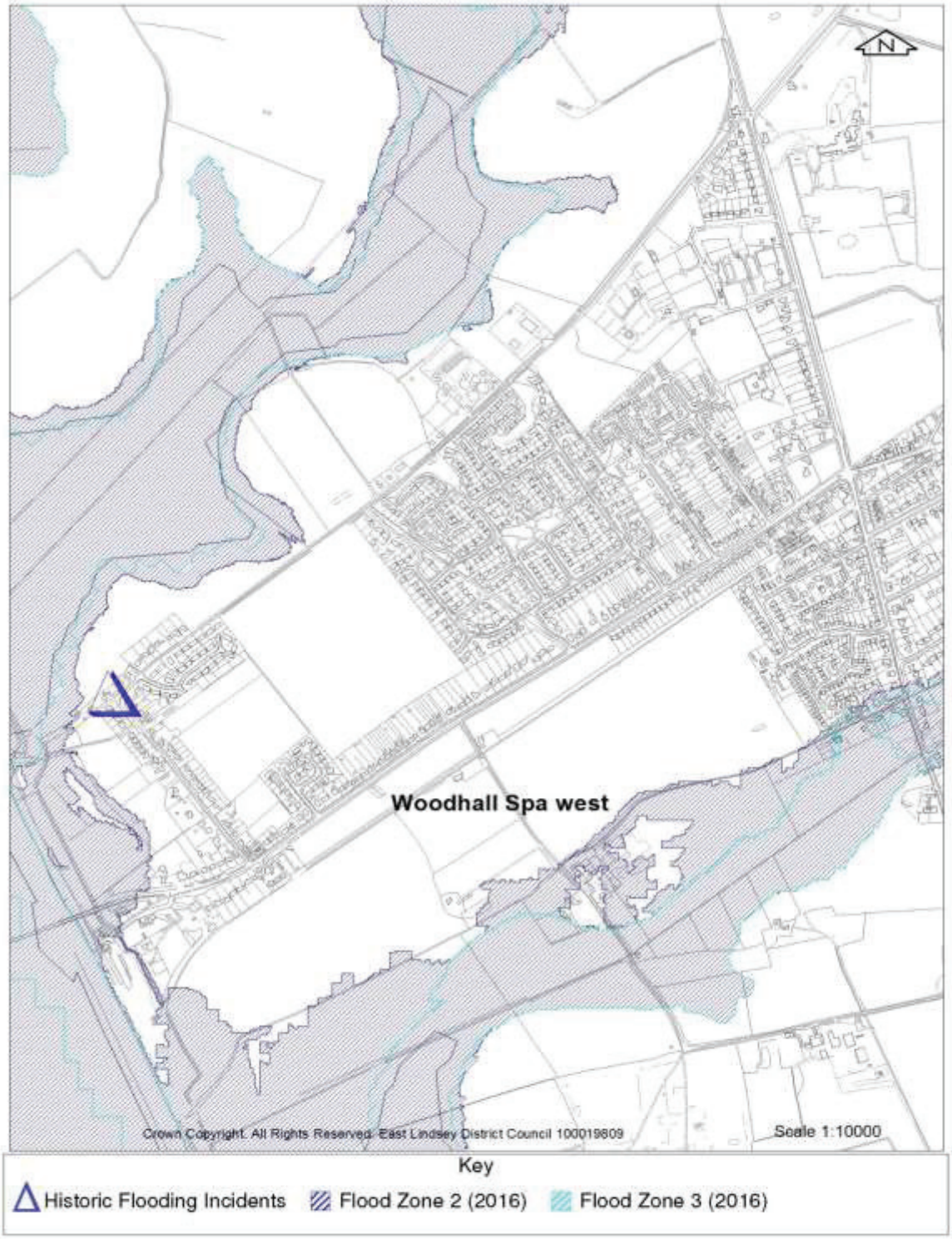
Flood risk in Woodhall Spa comes from the fluvial threat associated with the River Witham at the western edge of the village, but the land rises to the east and the bulk of the village is not at risk.

The flood zone maps show the main areas at risk lie alongside the Swine Syke drain and The Sewer which run either side of the settlement and drain into the Witham. Swine Syke lies to the north of Woodhall beyond Green Lane and poses no direct threat to development.

The 'Sewer' runs east to west close the southern edge of the town and poses a potential risk to properties alongside its route.

Significant, potential growth areas abut the village and in these areas FRA's will be required to assess the potential surface water issues arising from individual proposals.

There is limited evidence of flooding from other sources in Woodhall.


N
Woodhall Spa west
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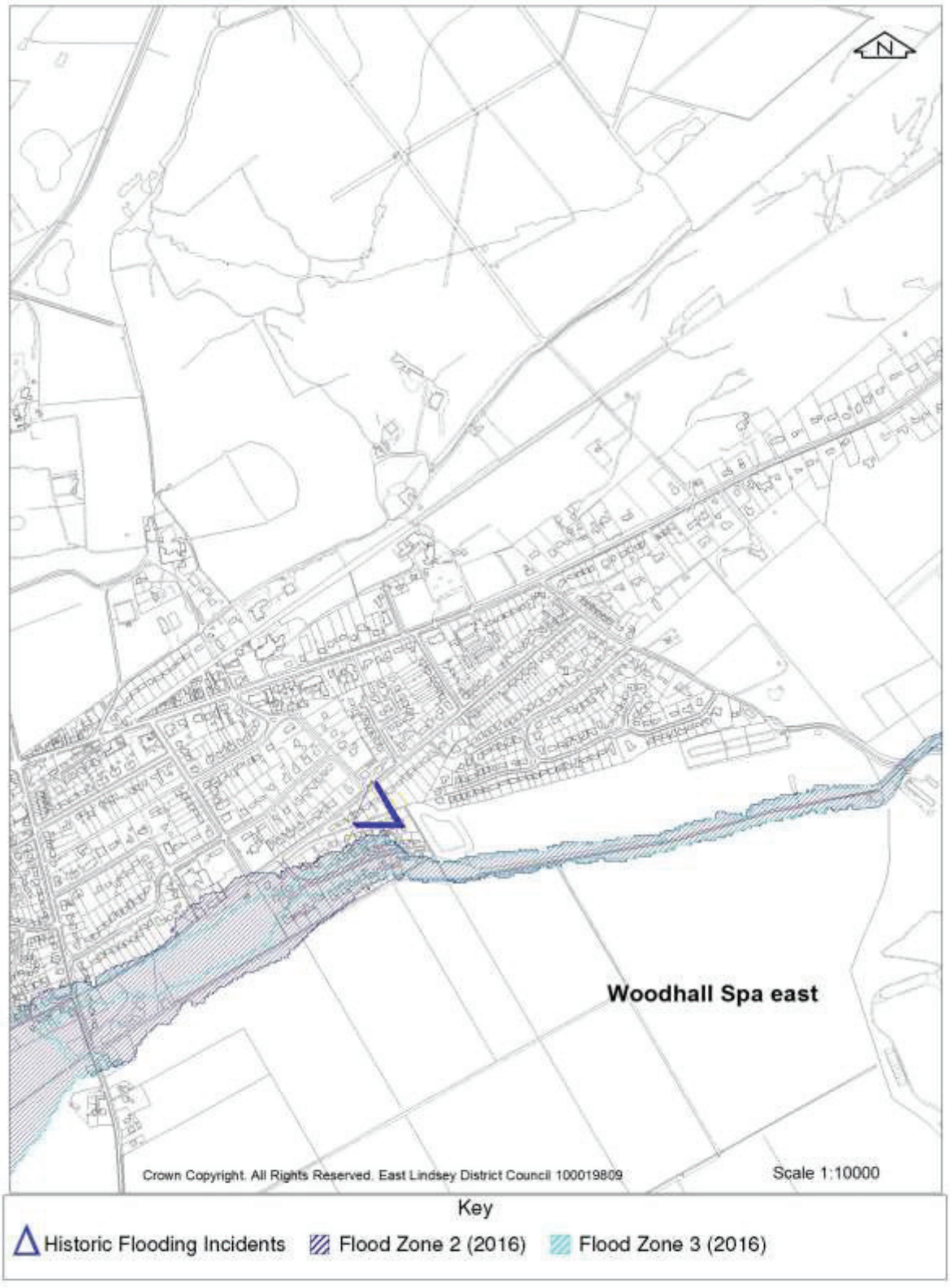
Scale 1:10000
Key
Historic Flooding Incidents
Flood Zone 2 (2016)
Flood Zone 3 (2016)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Woodhall Spa east
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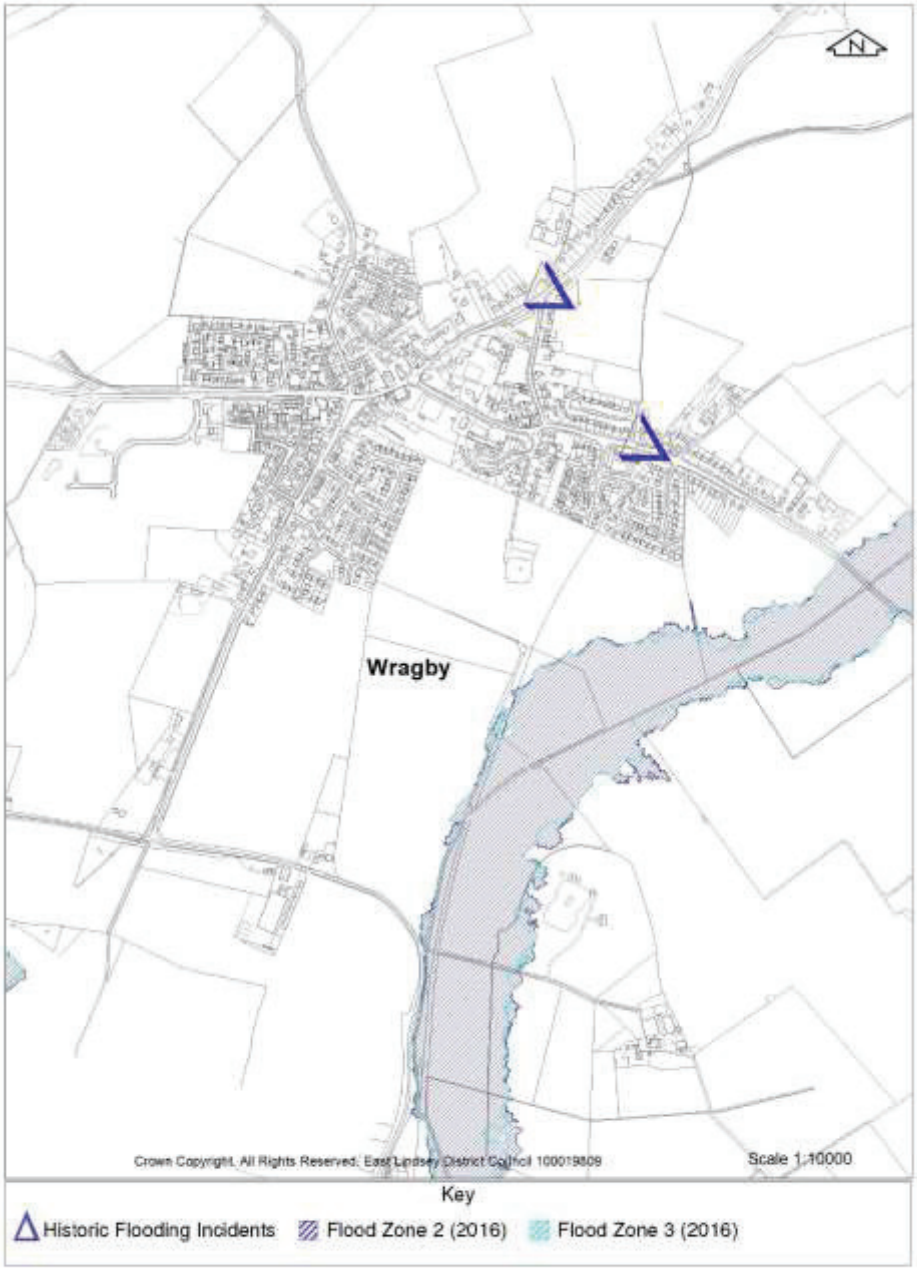
Scale 1:10000
Key
Historic Flooding Incidents
Flood Zone 2 (2016)
Flood Zone 3 (2016)

WRAGBY

As the map shows fluvial flooding is not identified as a potential risk for existing development in Wragby as the nearest waterway flows to the south east of the village. However, it may influence future development in that area.

There is some evidence from 2007 of surface water flooding on the Louth and Horncastle Roads and any development in these areas will need to assess local drainage capacity in more detail to avoid compounding any problems



PART THREE - EAST LINDSEY STRATEGIC FLOOD RISK ASSESSMENT

6.0 FLOODING FROM OTHER SOURCES

6.1 In addition to the threat of flooding from tidal and fluvial events, other causes of flooding have been identified in the District. These are principally:-

- Surface water flooding – occurs as a result of heavy rainfall and overland flows/run-off, overwhelming the drainage capacity of the local area.
- Sewer flooding - happens when sewers are overwhelmed by heavy rainfall or when they become blocked and can result in land and property being flooded with water contaminated with raw sewage.
- Rivers can also become polluted by sewer overflows.
- Groundwater flooding - this occurs when water levels in the ground rise above surface levels and is influenced by the local geology. It is most likely to occur in areas underlain by permeable rocks, called aquifers.
- Reservoir flooding – where large volumes of water are stored above ground level. In the unlikely event of failure it would result in a large volume of water being released very quickly.

6.2 The risk of floods from other sources highlighted by recent events most notably in the summer of 2007 and 2012 where as a result of a combination of unusually high rainfall over a short time period and the inability of the systems in place to discharge the quantities of water involved, resulting in river, surface water and sewer flooding.

6.3 The 2007 events led to the introduction of the Floods and Water Management Act (2010) and the establishment of the Lincolnshire Flood Risk and Drainage Management Partnership. As the Lead Local Flood Authority the County Council will produce and implement a Local Flood Risk Management Strategy using the network of local Flood Risk and Drainage Management Groups. More details can be found at www.lincolnshire.gov.uk

6.4 In addition, Anglian Water has an ongoing programme of improvements to the drains and sewer networks which takes into account the pressure placed on systems by new development and the need to meet the effects of climate change.

6.5 The most significant events locally in 2007 were in Louth and Horncastle, both market towns built on historic river crossings. Problems were also recorded at key locations identified (Table 3) below. A fuller list of parishes where flooding occurred is recorded at Appendix 2.

6.6 The settlements listed in the following table are those where development is proposed as part of the Local Plan and where there is a past record of flooding. Any proposals in these locations will need to be assessed to

establish the nature and extent of past events and any remedial action that has been undertaken to prevent a re-occurrence.

Location of flood events in Towns and Large Villages based on events recorded following 2007 summer floods

Alford	Hogsthorpe	Mablethorpe*	Stickney
Burgh Le Marsh	Holton Le Clay	Mareham Le Fen	Tetford
Chapel St Leonards*	Horncastle	North Thoresby	Tetney
Friskney	Huttoft	Sibsey	Wainfleet
Grainthorpe *	Legbourne	Skegness*	Woodhall Spa
Grimoldby Manby	Louth	Spilsby	Wragby

* Areas at significant risk from tidal flooding

6.7 The Table will be updated to reflect changes brought about by subsequent management measures, to record future events and to maintain a robust source of information for assessing the risk to new developments.

Reservoirs

6.8 The EA considers that the risk of flooding from reservoirs is low and, that in the event of a breach it is unlikely that there would be a total failure of defences and as a consequence the extent of any flooding is hard to predict. Covenham Reservoir is the only such above ground structure listed in East Lindsey. A recent assessment of the site (2011) indicated that as the structure has been designed, constructed and is maintained according to best practice, a breach of the embankments is considered highly unlikely.

7.0 FLOOD RISK MANAGEMENT

7.1 The EA has permissive powers to maintain defences and produced Flood Catchment Management Plans, Shoreline Management Plans and Flood Risk Management Plans to develop its strategies for dealing with flood risk into the future.

7.2 Under the provision of the Flood and Water Management Act 2010, Lincolnshire County Council (LCC) has taken the lead in preparing a Lincolnshire Flood Risk and Drainage Management Strategy. This also includes a Common Works Programme. That study provides clear terms of reference for future flood risk management measures in respect of flooding from other sources (discussed above). For more details of this and the rolling Common Works Programme including the County Councils Preliminary Flood Risk Assessment, see www.lincolnshire.gov.uk .

7.3 As part of that role LCC will be responsible as a statutory consultee on planning applications for assessing the flood risk on individual development sites using the information contained in site specific FRAs and Sustainable Urban Drainage Schemes (details set out below).

7.4 The IDB's also provide advice on planning applications and participate in the regular Planning and Drainage meetings held with relevant parties as part of the application consultation process, alongside their primary role, to provide land drainage, flood protection and water management services to standards recommended by the Department for Environment, Food and Rural Affairs. This is considered good practice and applicants are encouraged to liaise with the Planning & Drainage Group prior to submitting their applications.

7.5 As part of the response to the Flood and Water Management Act, the IDB's also provide advice and supervisory enforcement of drainage matters on behalf of Lincolnshire County Council in accordance with the requirements of the Land Drainage Act 1991.

Coastal Defence Management

7.6 East Lindsey is covered by two Shoreline Management Plans; the Flamborough Head to Gibraltar Point Shoreline and the Wash Management Plan which set out the strategy aspirations for the longer term management of flood risk on the coast. In addition the northernmost length of the coast is assessed through the Humber Flood Risk Management Strategy and from Saltfleet to Gibraltar Point is covered by the Saltfleet to Gibraltar Point Flood Risk Strategy.

7.7 At present, management measures for the East Lindsey coast are focused on maintaining the current levels of defence. Broadly speaking, this involves two levels of approach. In the areas of accretion (north of Saltfleet and south of Skegness) there is no direct intervention. In-between, where coastal erosion is an issue there is an ongoing programme of beach re-nourishment. Known as the Lincshore Beach Re-nourishment scheme this work is part of a 5 yearly programme which is currently being reviewed with the view to having a new strategy in place by 2021.

7.8 The purpose of this programme is to maintain the level and gradient level of the beaches to prevent erosion both of the underlying strata and the man-made defences. The present Lincshore strategy is to increase the width of beach and maintain the crest to adapt to sea level rise. (Scott Wilson final draft SMP 2008, Appendix 2 p.112)

Flood Warning & Emergency Planning

7.9 The multi-agency Flood Response Plan for Lincolnshire sets out the roles of the different agencies. The following is an extract from that document setting out the approach to flood warning.

'The Environment Agency has the lead role in disseminating flood warnings to people who are at risk of flooding from rivers and the sea. This provides the opportunity to take action to protect themselves and their property. The Environment Agency uses a computerised forecasting system to determine the likelihood of flooding. By using radar and a network of rain and river gauges and forecasts from the storm tide forecasting service (Met Office) the Environment Agency issues three types of warning:

These are Flood Alert, Flood Warning, and Severe Flood Warning and then the All Clear. The warnings are disseminated by amongst others, automatic voice messaging, flood wardens, the 'floodline', media broadcasts and the internet. http://www.environment-agency.gov.uk/homeandleisure/floods

7.10 Additional information is also available from the Lincolnshire Flood Resilience Forum that has been established and has produced a strategy for informing residents so that they can be prepared and deal with future incidents. Available at http://www.lincolnshire.gov.uk/lincolnshire-prepared/

8.0 SITE SPECIFIC FLOOD RISK ASSESSMENTS

8.1 The NPPF requires site-specific flood risk assessment

- for proposals of 1 hectare or greater in Flood Zone 1.
- all proposals for new development (including minor development and change of use) in Flood Zones 2 and 3, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the Environment Agency), and
- where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding.

To help developers the EA maintains a web page dedicated to preparing an FRA - https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

8.2 The purpose of a site specific Flood Risk Assessment (FRA) is to establish whether a development is likely to be affected by current or future flooding from any source, including tidal, fluvial, surface water, groundwater and from ordinary watercourses e.g. those not managed by the EA or Drainage Boards (those watercourses not designated as main rivers), and whether it will increase flood risk elsewhere.

8.3 It is also to establish whether the measures proposed are adequate to deal with these effects and risks identified and if necessary, provide the information to the Local Planning Authority so that an assessment can be made as to whether the Sequential Test should is passed and whether the development will be safe and pass the second bullet point of the Exception Test if appropriate. The following sections provide further details of the aims and stages of preparing a FRA and the Sequential and Exception Tests.

8.4 For major developments in Flood Zone 1, the FRA should identify opportunities to reduce the probability and consequences of flooding. A FRA will also be required where the proposed development or change of use to a more vulnerable class may be subject to other sources of flooding, or where the Environment Agency, Internal Drainage Board and/or other bodies have indicated that there may be drainage problems.

8.5 The FRA should be prepared by the developer in consultation with the relevant flood risk management authority. The FRA should form part of an Environmental Statement when one is required by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 as amended.

8.6 At all stages of the planning process, the minimum requirements for flood risk assessments are that they should:

- be undertaken by competent people, as early as possible in the particular planning process, to avoid misplaced effort and raising landowner expectations where land is unsuitable for development;
- consider both the potential adverse and beneficial effects of flood risk management infrastructure including raised defences, flow channels, flood storage areas and other artificial features together with the consequences of their failure;
- consider the vulnerability of those that could occupy and use the development, taking account of the Sequential and Exception Tests and the vulnerability classification, including arrangements for safe access;
- consider and quantify the different types of flooding (whether from natural and human sources and including joint and cumulative effects) and identify flood risk reduction measures, so that assessments are fit for the purpose of the decisions being made;
- consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes;
- include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular development or land use;
- consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of development may affect drainage systems; and
- be supported by appropriate data and information, including historical information on previous events.

9.0 SEQUENTIAL AND EXCEPTIONS TEST

9.1 The NPPF sets out the requirements of the Sequential and Exceptions Tests. It ensures that a sequential approach is followed to steer new development to areas with the lowest probability of flooding. The aim is to steer new development to Flood Zone 1 (areas with a low probability of river or sea flooding). Where there are no reasonably available sites in Flood Zone 1, local planning authorities in their decision making should take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2 (areas with a medium probability of river or sea flooding) and apply the Exceptions Test.

9.2 If required the Exception Test, as set out in paragraph 102 of the Framework, is a method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.

9.3 Essentially the two parts to the Test require proposed development to show that it will provide wider sustainability benefits to the community that outweigh flood risk, and that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.

9.4 Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 (areas with a high probability of river or sea flooding) be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

9.5 Within each flood zone, surface water and other sources of flooding also need to be taken into account in applying the sequential approach to the location of development.

9.6 The Council has prepared a detailed paper setting out the approach to applying the Sequential and Exception Test in the Coastal Zone, that document is attached as Appendix 4 to the SFRA.

10.0 SUSTAINABLE URBAN DRAINAGE SYSTEMS (SUDS)

10.1 The potential for future surface water flooding is predicted to increase as a result of climate change and heavier rainfall (including flash flooding) and, from the increasing proportion of impermeable surfaces associated with new development. This may be as a result of larger roof areas and smaller gardens or other impermeable surfaces such as driveways/hard-standings, patios and conservatories.

10.2 The NPPF advocates the use of SUDS to manage surface water run-off. To respond to this, for all new development schemes developers will be required to assess the potential for surface water flooding on their sites and the increased risk of flooding elsewhere as a result of their proposals. (For example, in locations where surface water flooding has occurred recently.)

10.3 Appropriate measures should then be incorporated into their schemes to respond to the identified needs for management on their sites both in the construction (e.g. green roofs) of any new structures (including access) and the strategic infrastructure.

10.4 Developers will also be expected to make provision for the ongoing maintenance of SUDS including where necessary, the use of model agreements for their maintenance. More information on SUDS can be found in:

- Anglian Waters publication 'Towards Sustainable Water Stewardship (website http://www.anglianwater.co.uk;
- CIRIA http://www.susdrain.org/resources/ciria-guidance.html
- LCC Interim-SuDS-Guiding-Principles-for-Developers https://www.lincolnshire.gov.uk/transport-and-roads/strategy-policy-and-licences/control-of-new-development-affecting-the-highway/

Some of the different drainage solutions (structures) and their benefits that can be used in SUDS include

- Green Roofs
- Filter strips and swales
- Permeable surfaces and filter drains
- Infiltration devices; or
- Basins and ponds

10.5 The appropriateness of each approach will need to be assessed against the specific site characteristics including, in the case of infiltration devices the capacity of the soil to absorb significant amounts of water. The District contains a variety of soils but is predominantly loam/clay with differing levels of permeability and groundwater levels but also some free draining soils.

10.6 In order to ensure that organisations dealing with flood risk and water management work together and to make it easier for developers to meet and

understand requirements a monthly multi agency meeting is held. Developers wishing to progress SUDs schemes should contact the Council's Planning Team to arrange to discuss their proposals at the monthly, Multi-Agency Group Meeting.

10.7 Further information on the geology of the District can be found on the Multi-Agency Geographic Information for the Countryside (see www.magic.gov.uk/website/magic).

11.0 EXAMPLES OF SUSTAINABLE URBAN DRAINAGE OPTIONS

11.1 Set out below are some examples of sustainable drainage systems

- Filter strips and swales
- Filter strips and swales aim to mimic natural drainage patterns by using vegetation to slow and filter water from impermeable areas. Typically they allow water to pass evenly through areas of vegetation. Filter strips provide gently sloping surfaces where water can pass into the soil.
- Swales are typically formed by long shallow channels which promote infiltration and can provide for a combination of conveyance, infiltration, detention and treatment of runoff.
- Filter drains and permeable surfaces

11.2 Filter drains and permeable surfaces use permeable material below ground to store surface water which flows to this storage area via a permeable surface. This can include:

- Grass (if the area will not be trafficked)
- Reinforced grass
- Gravelled areas
- Paving blocks with large vertical holes filled with soil or gravel
- Paving with gaps between the individual units
- Porous paving blocks with a system of voids within the unit
- Continuous surfaces with an inherent system of voids

11.3 Water can then be disposed of by infiltration, an underdrain, or pumped out. Overflow can disposed of using high- level drainage or controlled surface flow.

Infiltration devices

11.4 Infiltration devices drain water directly into the ground. They may be used at source or any runoff can be conveyed in a pipe or other means to the infiltration area. Infiltration can be provided by soakaways, infiltration trenches

and basins, swales, filter drains and ponds and can form part of the landscaped area of a development.

11.5 Soakaways and infiltration trenches are sited below ground, whereas infiltration basins and swales for infiltration store water on the ground surface.

11.6 Infiltration devices should improve the natural capacity of the ground to store and drain water. Rain falling onto permeable (e.g. sandy) soil soaks into it. Infiltration devices use this natural process to dispose of surface water runoff. Limitations occur where the soil is not very permeable, the water table is shallow or the groundwater under the site may be put at risk.

Basins and ponds

11.7 Basins are areas for storage of surface runoff that are free from water under dry weather flow conditions. These structures include:

- Flood plains
- Detention / extended detention basins

11.8 Ponds contain water in dry weather, and are designed to hold more when it rains. They include:

- Balancing & attenuation ponds / lagoons
- Flood storage reservoirs
- Retention ponds
- Wetlands
- a combination of the above

11.9 Basins and ponds store water on the surface, either by temporarily flooding an area, or permanent ponds and work by storing floodwater and releasing it slowly once the risk of flooding has passed. These methods also offer significant opportunities for sports and recreation, and for the provision of wildlife habitats and as such contribute to the structural open space requirements for sites. As part of water storage schemes exceedance is considered as part of the assessment of storage reservoir capacity used in SUDs schemes and the Council will require that suitable mitigation is put in place.

Green Buildings

11.10 Green roofs are another form of sustainable drainage and this approach can also bring wider environmental benefits. Benefits include reducing rainwater runoff, creating wildlife habitats and providing sound and heat

insulation. Green roofs can be used in residential and commercial developments to create a natural habitat on top of the building.

12.0 RESIDUAL FLOOD RISK (SEE PLANNING POLICY GUIDANCE)

12.1 Residual risks are those remaining after applying the sequential approach and taking mitigating actions. It is the responsibility of those planning development to fully assess flood risk, propose measures to mitigate it and demonstrate that any residual risks can be safely managed.

12.2 There are benefits of ensuring that development has resilient and resistant construction and that this has been assessed both through risk assessment and real time testing, which has shown that it can be achieved more consistently and is less likely to encourage occupiers to remain in buildings that could be inundated by rapidly rising water levels.

12.3 Flood-resilient buildings are designed to reduce the consequences of flooding and facilitate recovery from the effects of flooding sooner than conventional buildings. This may be achieved through the use of water-resistant materials for floors, walls and fixtures and the siting of electrical controls, cables and appliances at a higher than normal level.

12.4 Flood-resistant construction can prevent entry of water or minimise the amount of water that may enter a building where there is flooding outside. This form of construction should be used with caution and accompanied by resilience measures, as effective flood exclusion may depend on occupiers ensuring some elements, such as barriers to doorways, are put in place and maintained in a good state. Buildings may also be damaged by water pressure or debris being transported by flood water. This may breach flood-excluding elements of the building and permit rapid inundation. Temporary and demountable defences are not normally appropriate for new developments.

13.0 KEY SOURCES OF DATA

The primary sources of data used to inform this report are identified in section 1. Further information on those sources and their application is contained below.

Environment Agency Flood Zone Maps. The Flood Zone Maps provide the starting point for the Council's own SFRA and show the full extent of the flood risk areas. They break flood risk areas into 3 broad zones, which categorise the degree of risk in each. Zone 1 sets out the areas where there is little or no risk. Zones 2 and 3 identify the areas at most risk and they share similar if not contiguous boundaries. In Zone 2 land is assessed as having a 0.1% to 1.0% chance of flooding in any year whilst in Zone 3 the risk of flooding from rivers is 1% or greater probability and flooding from the sea has a 0.5% or greater probability of occurring.

The Flood Hazard Maps showing the predicted extent of flooding along the coast as a consequence of tidal breaches or overtopping http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=floodmap&layerGroups=default&lang=_e&ep=map&scale=11&x=535457.75&y=387732.6875

NPPF National Planning Policy Framework and Planning Policy Guidance

Anglian Water publication 'Towards Sustainable Water Stewardship (website http://www.anglianwater.co.uk

Louth Coastal Flood Management Plan, River Witham Catchment Flood Management Plan, Wash Banks Shoreline Management Plan. www.environment-agency.gov.uk

Flamborough Head to Gibraltar Point Shoreline Management Plan 2010. www.environment-agency.gov.uk

Local Drainage Boards. Lindsey Marsh Drainage Board, Witham 3rd and 4th Drainage Boards

Lincolnshire Flood Risk & Drainage Management Framework

APPENDIX 1 ENVIRONMENT AGENCY STANDING ADVICE MATRIX Jan 2017

Glossary/Key							
Please refer to the National Planning Practice Guidance (Table 3) for advice on when the Sequential and Exception Tests are applicable	Environment Agency Environmental Permitting Regime distance - any works within 8m of fluvial Main River, or 16m of tidal defences (including culverting or control of flow of any river or stream)	Danger to ALL (Hazard Rating >2)	Danger to MOST (Hazard Rating 1.25 - 2)	Danger to SOME (Hazard Rating 0.75 - 1.25)	Low Hazard (Hazard Rating 0 - 0.75)	Flood Zone 3	Flood Zone 2
Water Compatible (excluding development that includes essential ancillary sleeping or residential accommodation)	Consult EA	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	No Comment	No Comment
Major & Non-major* 'Less Vulnerable' uses, e.g. commercial/industrial development	Consult EA	Consult EA	Appropriate Mitigation	Appropriate Mitigation	No Comment	No Comment	No Comment
Tidal Risk Scenario advice only. New short-let **Camping and Caravan Sites** (incl. log cabins & chalets) - subject to flood warning and evacuation plan	Consult EA	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation
Fluvial Risk Scenario advice only. New short-let **Camping and Caravan Sites** (incl. log cabins & chalets) - subject to flood warning and evacuation plan	Consult EA	EA **OBJECTS** to the principle of development due to risk to life	EA **OBJECTS** to the principle of development due to risk to life	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation

Change of Use - Less Vulnerable to More Vulnerable or within More Vulnerable category, involving increase in risk to people - *please see note for other categories & exclusions*	Consult EA	Consult EA	Consult EA	Appropriate mitigation	Appropriate mitigation	No Comment	No Comment
Non-major* 'More Vulnerable' uses, including residential development & residential holiday accom. (less than 10 dwellings/units or less than 0.5ha in size), *except short-let caravan sites - see A5 & A6 above*	Consult EA	Consult EA	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	No Comment	No Comment
Major* 'More Vulnerable' uses including residential development & residential holiday accom (not including camping/caravan sites) - greater than 10 dwellings/units or 0.5ha in size	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	No Comment
Essential Infrastructure	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	No Comment
Highly Vulnerable' uses, e.g. caravans, mobile homes and park homes intended for permanent residential use - With the Exception of buildings and infrastructure explicitly for use in emergencies (which should be referred to the EA for bespoke advice)	Consult EA	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	Consult EA
** definition taken from T&CP Direction 2009*							

APPENDIX 2 LIST OF PARISHES WHERE FLOODING OCCURRED IN 2007

Parish		
ABY	GRAINTHORPE	SCREMBY
ADDLETHORPE	GREAT CARLTON	SIBSEY
ALFORD	GREAT STEEPING	SKEGNESS
ALVINGHAM	GRIMOLDBY	S. COCKERINGTON
ANDERBY CREEK	HALTON HOLEGATE	SOUTH RESTON
BEESBY	HOGSTHORPE	SPILSBY
BELCHFORD	HOLTON LE CLAY	STEWTON
BILSBY	HORNCASTLE	STICKFORD
BRINKHILL	HUTTOFT	STICKNEY
BURGH LE MARSH	KIRKBY ON BAIN	STRUBBY
BURWELL	LEGBOURNE	TATHWELL
CALCETHORPE	LITTLE CAWTHORPE	TETFORD
CANDLESBY	LOUTH	TETNEY
CHAPEL ST LEONARDS	MABLETHORPE	THEDDLETHORPE
CLAXBY ST ANDREWS	MALTBY LE MARSH	THORNTON LE FEN
COVENHAM	MANBY	TOYNTON ALL SAINTS
COVENHAM ST BARTHOLOMEW	MAREHAM LE FEN	TOYNTON ST PETER
COVENHAM ST MARY	MUMBY	WAINFLEET
CROFT	NORTH COCKERINGTON	WAINFLEET ALL SAINTS
CUMBERWORTH	NORTH COTES	WAINFLEET ST MARY
FIRSBY	NORTH THORESBY	WELL
FOTHERBY	OLD BOLINGBROKE	WILLOUGHBY
FRISKNEY	ORBY	WITHERN
FULSTOW	PARTNEY	WOODHALL SPA
GAYTON LE MARSH	RAITHBY, Nr SPILSBY	WRAGBY
GIPSEY BRIDGE	REVESBY	
GOULCEBY	SCAMBLESBY	

APPENDIX 3 LINCOLNSHIRE COUNTY COUNCIL GUIDANCE FOR SITE SPECIFIC ASSESSMENTS

Lincolnshire County Council as Lead Local Flood Authority is responsible for managing 'Other Sources' of flooding including Surface Water Flood Risk, Ordinary Water Courses and Groundwater. They deal with local sources of flood risk and have identified the issues to be considered by Flood Risk Assessments for sites as;

The County Council advises that site-specific FRA to support a planning application and Sequential and Exception Tests should also consider:

- Overland flow routes from rainfall
- Surcharge of drains
- Records of historic flooding
- groundwater susceptibility map
- BGS maps
- Historic records of ground water flooding
- Ordinary watercourses

APPENDIX 4 SEQUENTIAL AND EXCEPTION TEST FOR DEVELOPMENT IN THE COASTAL ZONE OF EAST LINDSEY

The Coastal Zone is the area covered by the Environment Agency`s Coastal Flood Hazard Maps. The zone is split into four areas.

1. Red – Danger for All
2. Orange – Danger for Most
3. Yellow – Danger for Some
4. Green – Low hazard (caution)

Chapter 10 Coastal East Lindsey sets out the Council`s policy approach to development in the Coastal Zone. The policies set out what development the Council will and will not support in this area of flood risk.

All relevant development in areas of flood risk has to show how it has passed the Sequential and Exception tests. With regard to the Sequential Test this steers development to areas of lowest risk. One of the aims of the Coastal Policy is to make it clear to those wishing to develop what will and will not be supported by the Council. Part of this work is to make the process of submitting and understanding the process around planning easier. To aid in this, this Annex to the Plan sets out how relevant development meets the Sequential test in the coastal zone. Development supported by the policy is deemed to have passed the Sequential Test, it must then demonstrate how it passes the Exception Test.

For the Exception test, the very term exception means that it is beyond that would normally be allowed. It is important that all relevant development still does demonstrate that it provides wider sustainability benefits. In order to assist those wishing to develop the Council will test development against its Sustainability Objectives set out below. Whilst the Council strongly supports economic growth on the coast, all relevant development should score positively and demonstrate that it provides wider environmental, social and economic benefits to the community.

All relevant development will need to provide a site-specific flood risk assessment which should identify and assess the risks from all forms of flooding to and from the development. It should demonstrate how these risks will be managed so that development remains safe throughout its lifetime, taking into account climate change.

Listed below for information are the Flood Risk Vulnerability Classifications from the National Planning Policy Framework

ESSENTIAL INFRASTRUCTURE	•Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. •Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water

	treatment works that need to remain operational in times of flood. •Wind turbines.
WATER COMPATIBLE	•Flood control infrastructure. •Water transmission infrastructure and pumping stations. •Sewage transmission infrastructure and pumping stations. •Sand and gravel working. •Docks, marinas and wharves. •Navigation facilities. •Ministry of Defence defence installations. •Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. •Water-based recreation (excluding sleeping accommodation). •Lifeguard and coastguard stations. •Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. •Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.
HIGHLY VULNERABLE	•Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. •Emergency dispersal points. •Basement dwellings. •Caravans, mobile homes and park homes intended for permanent residential use. •Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').
MORE VULNERABLE	•Hospitals •Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. •Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. •Non–residential uses for health services, nurseries and educational establishments. •Landfill* and sites used for waste management facilities for hazardous waste. •Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
LESS VULNERABLE	•Police, ambulance and fire stations which are not required to be operational during flooding. •Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'More Vulnerable' class; and assembly and leisure. •Land and buildings used for agriculture and forestry. •Waste treatment (except landfill* and hazardous waste facilities). •Minerals working and processing (except for sand and gravel

	working). •Water treatment works which do not need to remain operational during times of flood. •Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.

SEQUENTIAL TEST

With regard to the Coastal Zone and Strategic Policies SP17 to SP21 Coastal East Lindsey, the following developments will be deemed to have passed the Sequential Test.

Essential Infrastructure	✓
Water Compatible	✓
Holiday Accommodation (static caravans, touring caravans, camping, log cabins, chalets, hotels, bed and breakfast accommodation)	✓
Hazardous Substance installations – other than that set out above	**X**
Employment developments (other than those associated with holiday accommodation)	✓
Community buildings or uses	✓
Residential	**X**
Social Housing	✓
Housing for specified vulnerable people as set out in the Councils Housing Strategy	✓
Specialist housing for older persons where there is an identified care need	✓
Housing on brownfield blighted land as set out in SP13a	✓

Please Note: The National Planning Policy Framework states that the Sequential Test does not need to be applied to change of use except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site.

EXCEPTION TEST

The Exception Test is split into two parts. For the Exception Test to be passed:

Part 1: it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and

Part 2: a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

The table below indicates which type of development is deemed to have passed Part 1 of the Exception Test. All other development must demonstrate that they pass the Test using the Sustainability Appraisal Form set out below.

Essential Infrastructure	✓
Water Compatible	✓
Holiday Accommodation (static caravans, log cabins, chalets)	✓
Holiday Accommodation (Hotels, bed and breakfast accommodation, touring caravans and camping)	✓
Employment developments (other than those associated with holiday accommodation)	✓
Wider community buildings or uses	✓
Social Housing	✓

Housing for specified vulnerable people as set out in the Councils Housing Strategy	✓
Specialist housing for older persons where there is an identified care need	✓
Housing on brownfield blighted land as set out in SP13a	✓

APPENDIX 5 IDB Areas

APPENDIX 6

SUSTAINABILITY APPRAISAL FORM FOR RELEVANT DEVELOPMENT IN AREAS OF HIGH COASTAL FLOOD RISK

The table below sets out the Council's Sustainability Objectives, against which it will test development proposals. Applicants should provide commentary to reflect how their proposals will contribute to the objectives.

SA Objective	**Sustainability Appraisal** **Questions** **Will the option / proposal:**	**Commentary**	**Positive/ Negative Contribution**
1. Protect and enhance the quality and distinctiveness of the areas' biodiversity (native plants and animals) and geodiversity.	Protect and provide opportunities for improving / enhancing sites designated for their nature conservation value / geodiversity value (local and national levels)? Protect the habitats and species protected by International and UK law? Help achieve Lincolnshire Biodiversity Action Plan (BAP) targets? Help to avoid / reduce the loss of / decline in seminatural habitats, agricultural habitats, urban habitats / geological resources? Conserve species and protect the districts overall biodiversity?		
2. Protect and enhance the quality and distinctiveness of the area's landscapes, townscapes and historic environment.	Protect and provide opportunities to enhance the distinctive landscapes (e.g. Conservation Areas, Lincolnshire Wolds AONB) within the district? Will it maintain and, where possible, increase the area of high-quality green infrastructure within the district – e.g. woodlands, public rights of way etc? Will visual aspects / amenity be compromised? Provide opportunities to enhance the townscapes within the district – e.g. promotion of the repair and re-use of historic buildings? Maintain and Enhance the character / distinctiveness of towns and villages (including conservation areas)? Protect or enhance known features of historical, archaeological, or cultural interest, including their setting. Protect areas associated with a known high risk archaeological resource where actual and / or quality / quantity of finds is not known e.g. features associated with buried archaeology?		

3. Protect natural resources from avoidable losses and pollution and minimise the impacts of unavoidable losses and pollution.	Contribute to effective management of water resources (surface and ground waters) via a reduction in water consumption (domestic, commercial, industrial, agricultural)? Will it contribute to effective management of water resources (surface waters) via storage of excess precipitation? Reduce diffuse and point source water pollution (e.g. from STWs, commercial, industrial and agricultural sources) and therefore contribute to 'good ecological status' for all water bodies. Protect the habitats and species reliant on the water environment e.g. in rivers, canals, lakes, ponds and adjacent areas of wetland habitats? Avoid an increase in light pollutants, particularly in more rural areas and the Lincolnshire Wolds AONB? Protect the best and most versatile agricultural land? Encourage appropriate use of finite resources, waste reduction and re-use and recycling of material for all new developments (construction and operational phases)?		
4. Avoid the risk of flooding (where possible) and fully mitigate against the impacts of flooding where it cannot be avoided.'	Will it minimise flood risk to people, property, agricultural land and other assets from rivers and from drainage infrastructure e.g. resulting from intense or prolonged precipitation? Will it minimise flood risk to people, property, agricultural land and other assets from coastal inundation e.g. via storm surges? Increase flood risk to people, property, agricultural land and other assets downstream of the proposed development?		
5. Promote viable and diverse economic growth that supports communities within the district.	Promote sustainable economic growth? Contribute to a low carbon economy in accordance with the principles set out in the Stern Report (October 2006)? Provide diversity in the economy and encourage sustainable business development? Encourage the rural economy and support farm diversification?		

	Assist the provision of appropriate land and premises for business activity? Support the growth of sectors that offer scope to reduce out-commuting, e.g. to Lincoln, Grimsby and Boston? Improve access to education and training, and support provision of skilled employees to the economy? Improve opportunities for and access to, affordable education and training (basic skills, advanced skills)? Promote employment opportunities and the diversification of employment opportunities (including skilled opportunities – professional and managerial occupations) and reduce the outmigration of skilled workers? Enable tourism opportunities to be exploited?		
6. Prioritise appropriate re-use of previously developed land and minimise the loss of the best agricultural land and greenfield sites.	Promote the efficient re-use of land and buildings for new developments and ensure that more dense developments well designed and are associated with good public transport systems to help achieve the most sustainable pattern and types of development? Protect the best and most versatile agricultural land?		
7. Improve accessibility to key services, facilities amenities and green infrastructure including the promotion of sustainable modes of access.	Improve access to local services, facilities, places of employment and green infrastructure for all residents throughout the district? Provide improved and sustainable public modes of transport in both urban and rural areas and reduce the need to travel by car?		
8. Increase reuse and recycling rates and minimise the production of waste.	Reduce waste generated as part of all building programmes? Reduce household waste? Increase waste recovery and recycling (domestic, commercial etc)?		

9. Support inclusive, safe and vibrant communities.	Help achieve the most sustainable pattern and types of development with a view to developing sustainable communities? Improve the quality of life for communities by allowing residents to become actively involved in decision making at a local level? Maintain, enhance and create green infrastructure assets (e.g. green space) across the district accessible to the whole community? Promote more diverse and cohesive communities? Improve the availability and accessibility of key local services and facilities, including health, education and leisure (shops, post offices, pubs etc.) that also reduces the need to travel? Reduce the fear of crime, the actual levels of crime, antisocial behaviour and improve public safety? Promote and encourage design principles that positively reduce crime and antisocial behaviour?		
10. Ensure that local housing needs are met.	Support the provision of a range of house types and sizes, including affordable housing, to meet the identified needs of all sectors of the community? Enable first time buyers to purchase a home? Ensure the adoption of sustainable construction and design principles in line with the Code for Sustainable Homes?		
11. Increase energy efficiency and ensure appropriate sustainable design, construction and operation of new developments.	Contribute to a reduction in energy/resource consumption (e.g. domestic, commercial, and industrial). Lead to an increased proportion of energy needs being met from renewable sources e.g. at domestic and commercial scales? Ensure all new housing incorporates at least some energy saving measures? Lead to local developments built to a high standard of sustainable design? Reduce waste generated as part of all building programmes? Reduce household waste and increase waste recovery and recycling (domestic, commercial etc)?		

12. Encourage and provide the facilities and infrastructure for healthy lifestyles"	Ensure that adequate health facilities and infrastructure is available for present and future generations? Ensure health facilities are accessible to all sectors of the community? Reduce health inequalities across the district? Promote healthy and active lifestyles? Maintain, enhance and create green infrastructure assets (e.g. green space, recreation and sports facilities, semi-wild/rural places) across the district accessible to the whole community?		
13. Positively plan for, and minimise the effects of, climate change.	Minimise flood risk to people, property, agricultural land and other assets from the sea, from rivers and from surface water drainage infrastructure? Increase flood risk to people, property, agricultural land and other assets downstream of the proposed development? Contribute to effective management of water resources (surface waters) (e.g. storage of excess precipitation)? Promote appropriate energy production technologies at the district scale? Contribute to a reduction in emissions of greenhouse gases within the district?		

In order to comply with Part 2 of the Exception Test applicants will need to undertake a site-specific Flood Risk Assessment (Please note that even where National Planning Policy does not require the Exception Test to be applied, all proposals within the Coastal Zone will still need to undertake a site-specific Flood Risk Assessment to demonstrate that the development will be safe for its lifetime [NPPF, Footnote 20]).

Applicants are advised to refer to the Advice Matrix within the Council's Strategic Flood Risk Assessment for guidance on the mitigation requirements that will be expected to be incorporated into proposals in order to demonstrate that they will be safe. The Council will seek bespoke advice from the Environment Agency, where appropriate, to confirm if Part 2 of the Exception Test is passed.