

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 be 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 be 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 - <i>please see note for other categories & exclusions</i>	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), <i>except short-let caravan sites - see A5 & A6 above</i>	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	Consult EA				
<i>* definition taken from T&CP Direction 2009</i>							

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
BEESEY	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	<ul style="list-style-type: none">•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
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	<p>treatment works that need to remain operational in times of flood.</p> <ul style="list-style-type: none"> •Wind turbines.
WATER COMPATIBLE	<ul style="list-style-type: none"> •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	<ul style="list-style-type: none"> •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	<ul style="list-style-type: none"> •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	<ul style="list-style-type: none"> •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.
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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	✗
Employment developments (other than those associated with holiday accommodation)	✓
Community buildings or uses	✓
Residential	✗
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 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
<p><i>1. Protect and enhance the quality and distinctiveness of the areas' biodiversity (native plants and animals) and geodiversity.</i></p>	<p>Protect and provide opportunities for improving / enhancing sites designated for their nature conservation value / geodiversity value (local and national levels)?</p> <p>Protect the habitats and species protected by International and UK law?</p> <p>Help achieve Lincolnshire Biodiversity Action Plan (BAP) targets?</p> <p>Help to avoid / reduce the loss of / decline in seminatural habitats, agricultural habitats, urban habitats / geological resources?</p> <p>Conserve species and protect the districts overall biodiversity?</p>		
<p><i>2. Protect and enhance the quality and distinctiveness of the area's landscapes, townscapes and historic environment.</i></p>	<p>Protect and provide opportunities to enhance the distinctive landscapes (e.g. Conservation Areas, Lincolnshire Wolds AONB) within the district?</p> <p>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?</p> <p>Will visual aspects / amenity be compromised?</p> <p>Provide opportunities to enhance the townscapes within the district – e.g. promotion of the repair and re-use of historic buildings?</p> <p>Maintain and Enhance the character / distinctiveness of towns and villages (including conservation areas)?</p> <p>Protect or enhance known features of historical, archaeological, or cultural interest, including their setting.</p> <p>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?</p>		

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

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

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

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

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.