Blackpool Strategic Flood Risk Assessment

June 2008
This Report has been prepared by Blackpool Council for integration as part of a Joint Fylde Sub-Region Strategic Flood Risk Assessment (SFRA) in conjunction with assessments undertaken for the Wyre and Fylde Local Authority areas.

Consultation has been undertaken with the Environment Agency, whose comments have been reflected throughout the preparation of the Report.

The amalgamated Fylde Sub-Region SFRA will share a common first section, comprising:

1.0 BACKGROUND
2.0 INTRODUCTION
3.0 MANAGING FLOOD RISK THROUGH THE SPATIAL PLANNING PROCESS
4.0 SEQUENTIAL AND EXCEPTION TESTS
5.0 AIMS AND OBJECTIVES OF STRATEGIC FLOOD RISK ASSESSMENT.
6.0 OVERVIEW OF KEY ROLES AND RESPONSIBILITIES

The following content will form a component part of the overall assessment.

7.0 to 22.0 BLACKPOOL SFRA (as attached)
# BLACKPOOL STRATEGIC FLOOD RISK ASSESSMENT

## Table of Contents (common to Fylde Sub-Region SFRA – not enclosed)

1.0 BACKGROUND
2.0 INTRODUCTION
2.1 Background to Strategic Flood Risk Assessments 8
3.0 MANAGING FLOOD RISK THROUGH THE SPATIAL PLANNING PROCESS
4.0 SEQUENTIAL AND EXCEPTION TESTS
4.1 Exception Test 10
5.0 AIMS AND OBJECTIVES OF STRATEGIC FLOOD RISK ASSESSMENT
6.0 OVERVIEW OF KEY ROLES AND RESPONSIBILITIES

## Table of Contents (Specific Blackpool Sub-Section of the SFRA as attached)

7.0 STUDIES
8.0 EXISTING PLANNING POLICIES ON FLOOD RISK MANAGEMENT
8.1 Local Development Frameworks
9.0 OVERVIEW OF THE STUDY AREA
10.0 ENVIRONMENT AGENCY FLOOD ZONE MAP
11.0 FUNCTIONAL FLOOD PLAINS
12.0 STORM WATER FLOOD RISK
13.0 SOURCE RECEPTOR PATHWAY MODEL
13.1 Source Pathways
14.0 HISTORICAL FLOODING
14.1 Overview
14.2 Schedule of Recorded Flooding Events
15.0 CLIMATE CHANGE
16.0 APPLICATION OF SEQUENTIAL TEST
17.0 SCOPING OF THE BOROUGH
18.0 POTENTIAL DEVELOPMENT SITES WITHIN BLACKPOOL
18.1 Overview
18.2 The Central Area
18.3 Strategic Undeveloped land sites elsewhere within the Existing Urban Area
18.4 Strategic Undeveloped land sites outside of the existing urban area
19.0 ACCESS ROUTES TO THE AREA
20.0 EXISTING FLOOD DEFENCE INFRASTRUCTURE
20.1 Coastal defence assets
20.2 Land Drainage Assets
20.3 Watercourse Risk Assessment Schedules
21.0 RECOMMENDED POLICY FOR DEVELOPMENT AREAS
22.0 APPROPRIATE RISK MANAGEMENT MEASURES
22.1 Exception Test Requirements
22.2 Residual Flood Risk
22.3 Mitigation Measure for Specific Sites

## Appendices

B1 BLACKPOOL LOCAL PLAN POLICY NE10 FLOOD RISK
B2 GENERAL CONSIDERATIONS FOR DEVELOPMENT PROPOSALS
B3 BLACKPOOL SFRA FLOOD ZONE MAPS
B4 BLACKPOOL SFRA POTENTIAL DEVELOPMENT SITES
BLACKPOOL SFRA

7.0 Studies

A number of key studies have been prepared for the area covered by the Blackpool Strategic Flood Risk Assessment (SFRA). A diagram of the interrelationship of studies is shown in figure 7.1 and their conclusions with relevance to this assessment are tabulated in table 7.2.

Figure 7.1 – The inter-relationship between the Strategic Flood Risk Assessment and other plans influencing development
<table>
<thead>
<tr>
<th>Study/Plan</th>
<th>Link</th>
<th>Brief Description of Contents</th>
<th>Key Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formby Point to Fleetwood Shoreline Management Plan Cell 11b</td>
<td><a href="http://www.wyrebc.gov.uk/Council_Services/Coastal_and_General_Engineering/Shoreline_Management_Plans/Formby_Point_to_River_Wyre_(SMP_11b).asp">http://www.wyrebc.gov.uk/Council_Services/Coastal_and_General_Engineering/Shoreline_Management_Plans/Formby_Point_to_River_Wyre_(SMP_11b).asp</a></td>
<td><img src="image" alt="Map of Formby Point to Fleetwood Shoreline Management Plan" /> <strong>Key to Recommended Management Options:</strong> Hold the Line. Selected Hold the Line. Do Nothing with Gates. Hold the Line or River Management Limits and Capital Works Prop. <strong>Coastal Process Unit Number:</strong> Low Level Land. <strong>Coastal Protection Act 1949 Schedule IV Boundary:</strong> Upstream Limit of SMP in River Wyre.</td>
<td>Hold the Line for all lengths of coastline. The current document is being reviewed as part of SMP2 process and will be reissued in 2009.</td>
</tr>
<tr>
<td>Wyre Catchment Flood Management Plan</td>
<td><a href="http://www.environment-agency.gov.uk/commndata/acrobat/wyre_summary_report_1697941.pdf">http://www.environment-agency.gov.uk/commndata/acrobat/wyre_summary_report_1697941.pdf</a></td>
<td>The Wyre CFMP is one of 76 CFMPs that the EA are currently producing throughout England and Wales. A Catchment Management Plan is a high level strategic planning tool through which decision makers can explore and define long term sustainability policies for flood risk management in a catchment. The CFMP will identify the size and location of various influences that can make a contribution and affect the consequence of flooding. Increased understanding will allow an estimate of potential changes in the catchment.</td>
<td>Currently there is a low level of risk from fluvial sources due to the existing defences in place. The plan is currently in production with the final plan due for dissemination in March 2008.</td>
</tr>
<tr>
<td>Blackpool Local Plan</td>
<td><a href="http://www.blackpool.gov.uk/nr/donvlres/391dcf8-7252-4c8d-b8bd-2ac7c714fd35/0/localplanjune2006.pdf">http://www.blackpool.gov.uk/nr/donvlres/391dcf8-7252-4c8d-b8bd-2ac7c714fd35/0/localplanjune2006.pdf</a></td>
<td>The local plan provides a statutory planning framework for development within Blackpool.</td>
<td>Development will be influenced by this SFRSA.</td>
</tr>
<tr>
<td>LanMIC Emergency Flood Response Plan</td>
<td><a href="http://www.lannmic.org.uk/Incidents.html">http://www.lannmic.org.uk/Incidents.html</a></td>
<td>The Lancashire Major Incident Plan has been produced to comply with the Civil Contingencies Act 2004. A specific multi agency plan to respond to flood risk has been prepared and is managed in partnership with the Blue Light Services, the Environment Agency and Local Authorities.</td>
<td>Comprehensive emergency arrangements in place and practiced.</td>
</tr>
</tbody>
</table>
Blackpool Council Major Emergency Plan


The Major Emergency Plan outlines Blackpool Council’s systems and procedures for dealing with major emergencies

Comprehensive emergency arrangements in place and practiced.

Blackpool Councils Drainage Area Plan

The plan outlines an assessment of the flooding risks to the Borough

The plan will help inform this SFRA

Blackpool Borough Council, Shoreline Strategy Plan

The plan outlines the council’s capital works program for the next 5 years

Noted by Maff

Blackpool Borough Council, Shoreline Strategy Plan Five Year Review

The plan reviews the council’s strategy for management of the coastline

Noted by Maff

8.0 Existing Planning Policies on Flood Risk Management

Blackpool Council sets out in the adopted Blackpool Local Plan (2006) its current policies for the control of development related to the potential issue of flood risk.

The policy sets out that development in areas at risk from flooding will only be permitted where appropriate measures are in place and focuses on the use of sustainable drainage systems. Policy NE10 is set out in full at Appendix B1. A summary of the general procedures for considering development proposals is set out at Appendix B2.

Within all area plans the need to ensure that careful consideration is given to the risk of flooding in assessing any new strategic development options, and is a key requirement. Where appropriate, planning applications will be required to be supported by site specific flood risk assessments which should be prepared in consultation with Blackpool Council.

8.1 Local Development Frameworks

Local Development Frameworks (LDFs) provide a key planning tool for ensuring that flood risk is factored into the detailed allocation of land use types across an area in accordance with national and regional policy, but also taking account of specific local issues and concerns. They are an opportunity to provide clarification to prospective developers in the form of clear policies for the management of flood risk, as well as guidance on how flood risk issues should be addressed through site allocations in flood risk areas.

In the preparation of this Strategic Flood Risk Assessment (SFRA), Blackpool Council aims to fulfil its obligations as a planning authority in the consideration
of flood risk to provide information to the LDF. The Government’s Planning Policy Statement 25 (PPS25) requires that the SFRA is prepared to an appropriate level of detail to allow a “Sequential Test” to be applied in the site allocation process.

This SFRA forms an essential part of the pre-production/evidence gathering stage of the plan preparation process. Working jointly between the combined Local Authorities of Wyre, Fylde and Blackpool together with other stakeholders will enable a common Strategic Flood Risk Assessment (RSFRA) evidence base, which will ensure that full opportunities for sub-regional planning for flood risk can be achieved. The SFRA also takes into consideration regional policy guidance set out in the North West Regional Spatial Strategy (NWRSS).

9.0 Overview of the Study Area

Blackpool Council is a unitary Local Authority on the North West Coast of England. Its core area is bounded on the west by the Irish Sea. The Borough consists of the one main highly populated central urban area, with small peripheral areas of countryside to the south on Marton Moss and to the east of the town between Blackpool and Carleton (Wyre) and between Blackpool and Staining (Wyre).

The whole of the Borough is relatively flat low-lying land, although most of it lies above the 1 in 1000 year tidal level. It is protected in the west from coastal erosion and tidal inundation from the Irish Sea by concrete coastal defences, inspections of which are undertaken on an annual basis.

Land drainage to Blackpool is achieved by a variety of watercourses spread throughout the Borough which mostly outfall to the Public Sewer Network. Exceptions are the Marton Mere Catchment and Staining North Dyke which both outfall to Main Dyke and out of the Borough. There are is only one short section of valid Main River still remaining which links the Marton Mere overflow structure to its outfall with Main Dyke. The remaining Main River locations nominated historically by the Environment Agency have been absorbed in development and no longer connect with a Main River Outfall. All other Main River attributes have been culverted to accommodate a controlled outfall for their associated catchments, are no longer open watercourses and are under the ownership and maintenance responsibility of Blackpool Borough Council. There is a single 0.8km length of watercourse which has been defined as a critical ordinary watercourse which is not a main river. This length, known as Bispham Dyke, flows downstream from Chorley Road to outfall into the sewer network at Moor Park Avenue.

The main causes of flooding throughout the Borough are from Sewer Network failure on public, private or surface water systems due to inadequate maintenance, or due to being overwhelmed by exceptional rainfall events.

The areas and their main sources of flooding are shown in the table below.
<table>
<thead>
<tr>
<th>Area</th>
<th>Area Description</th>
<th>Sources of Flooding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchorsholme</td>
<td>This area to the North of the Borough is urban in nature. The ground relatively high but has low hydraulic gradients. It is bound to the west by the Irish Sea and is protected from coastal erosion by concrete defences.</td>
<td>The main risk of flooding in this area is from the sewerage network, upon which it is entirely reliant for combined foul and surface water disposal. If operational failure coincides with exceptional rainfall it will result in the surcharge of sewage from this combined sewerage system. Incidental problems are generally caused by inadequate watercourse or highway maintenance.</td>
</tr>
<tr>
<td>Central and Coastal Area</td>
<td>This area to the West of the Borough is densely urban in nature with much commercial property. It is bound by the Irish Sea to the west and is protected from coastal erosion and tidal inundation by concrete defences. The area is low lying and flat with much of the area within historical Zone 3a.</td>
<td>Historically the main risk of flooding in this area was from tidal inundation. The area is now protected by substantial coastal defences. A breach of the coastal defences however would lead to the flooding of large areas. The main risk of flooding in this area is from the sewerage network, upon which it is entirely reliant for combined foul and surface water disposal. If operational failure coincides with exceptional rainfall it will result in the surcharge of sewage from this combined sewerage system. Incidental problems are generally caused by inadequate watercourse or highway maintenance.</td>
</tr>
<tr>
<td>Marton Area</td>
<td>This area to the south east of the Borough is relatively flat land. Much of the area lies within flood zone 1 above the 1 in 1000 year tidal and fluvial level.</td>
<td>The main risk of flooding in this area is not directly from tidal or fluvial sources, but from the drainage of surface water. The area relies almost entirely for its disposal on a series of lift pumping stations, the failure of which results in the surcharge of foul and surface water sewage from this combined sewerage network. Incidental problems are invariable caused by inadequate highway or watercourse maintenance.</td>
</tr>
</tbody>
</table>
10.0 Environment Agency Flood Zone Map

The Environment Agency’s flood risk map for Blackpool is set out at Appendix B3 (Plan A). A more detailed flood risk map identifying potential sources and routes of flooding produced by Blackpool Council and fully reflecting the EA Flood Zone Map is shown at Appendix B3 (Plan B).

The Environment Agency Flood Map and associated information is intended for guidance only, and cannot provide details for individual properties. The map shows current best estimates of the areas at risk from flooding from rivers and the sea only and does not consider other sources. Flood Maps take no account of potential climate impact changes. The Flood Map information is also provided in digital form to local authorities and is updated as new information becomes available.

In terms of the areas shown as at risk from flooding in Blackpool, the major difference on the more detailed Blackpool Flood Zone Map is the much reduced landward area shown at risk from coastal flooding, taking full account of the extensive coastal flood defence construction programme that has been implemented. The EA Flood Zone Map does largely reflect the areas protected by the existing flood defences, consistent with the Appendix B3 Map – with the only areas with any significant current potential for tidal flooding shown as being on the landward side of the immediate promenade defences, southwards of the Tower along the coast and this area is the subject of the current major reconstruction and improvements to sea defences programmed for completion in 2008.

Most of Blackpool’s land as a whole is outside the blue areas shown on the Flood Zone Map, being in Flood Zone 1 (low probability). Those blue area flood zones within Blackpool shown on the EA map mainly correspond to those defined in Table D1 of PPS25 as Zone 2 (medium probability). Recent substantial improvements to the Public Sewerage Network tend to reduce this risk probability. There are no significant large areas of land in Blackpool outside Zones 1 and 2.

The main area of land shown in Blackpool as within Flood Zone 3a (high probability) is within the existing and already intensely built up urban area concentrated in parts of the north of the town (around Anchorsholme) and in the main central/ south urban area - where PPS25 advises there is a need to reduce the overall level of flood risk through the layout and form of development, and mitigate the potential of any development to increase flood risk elsewhere.

The Anchorsholme area within Zone 3a reflects the low height of this land, and specifically of the coastline itself north of the cliffs which extend along much of the rest of the north shore of Blackpool. The central area within Zone 3a, similarly reflects the lower height of these lands. The watercourse in this area has historically long been culverted, but the Flood Zone 3a area basically follows its original line, reflecting the natural pathway for surface water drainage to the shoreline around Manchester Square.
To alleviate problems of seawater flooding, the Council commenced a massive programme of sea defence and coast protection works in 1981, covering the length of Promenade from Anchorsholme to Starr Gate. The seawall along the whole of the borough's frontage is being replaced in stages to maintain a high level of defence and is planned for completion in 2009. The final central area is currently under construction and has been designed to prevent flooding in a 1 in 200 year storm event. Much emphasis is now also on improving the appearance and environmental quality of the seafront as a mainstay of the Resort core infrastructure.

While the completion of the coastal sea defence work and future maintenance and improvements will continue to safeguard the main existing urban area, the SFRA considers the residual risk from a breach of these defences.

Outside the main urban area, lands within the Marton Mere catchment are shown on the Environment Agency Flood Map. Marton Mere itself is a freshwater lake covering an area of 18 hectares and forms part of a safeguarded SSSI, with other open lands within this catchment safeguarded as greenspace/parkland from development. Drainage is controlled and is reliant on a council owned surface water pumping station which also serves to control water levels in Marton Mere itself, and discharges through an outfall structure to Main Dyke out of the Borough. There is no longer any potential for fluvial influence on this catchment. None of this land is under any consideration for future strategic development.

There are no areas within Blackpool in Zone 3b (functional floodplain).

A **Sequential Test** is required to be undertaken for all the potential development sites in accordance with the guidance set out in PPS25 to assess their suitability for development. In addition, PPS25 requires more detailed Exception Tests to be undertaken where there are potentially more vulnerable development locations with large areas in flood zones 2 and 3.

All the remaining areas of undeveloped land considered within the SFRA with any potential for development within Blackpool are either in Flood Zone 1 (low probability) or within Flood Zone 2, but the latter lands, as referred to previously, have all effectively been removed from high risk from flooding from tidal inundation by the coastal defences. Potential redevelopment areas exist within Zone 3a in the Central Area of Blackpool where the **Exception test** may be needed to support the development of sites, depending on the class of proposed development in accordance with PPS25.
11.0  Functional Flood Plains

PPS25 defines functional flood plains as unprotected areas or areas that have less than a 25 years standard of protection. Analysis of the area indicates that there are no areas of land currently protected by flood defences that should be defined as functional flood plain.

This study also considers areas of land that currently act as storage areas for surface water that would increase flood risk to other areas should it be displaced. There are currently no significant areas of undeveloped land that could act in this way.

12.0  Storm-water Flood Risk

There are certain areas of the borough, which, although they are protected from tidal or fluvial influences, are still at risk of surface water flooding from and during exceptional rainfall events.

These principal areas are :-
- Anchorsholme – due to reliance on and inundation of the Public Sewerage network.
- Marton Mere Catchment – due to reliance on and inundation of a Council operated Pumping Station.
- Staining North Catchment – due to reliance on and inundation of a Council owned culverted watercourse outfall.
- Marton Moss – due to reliance on and inundation of the Public Sewerage network and incidence of inadequate watercourse maintenance.
- Any area of the borough which is susceptible to inundation from a failure of the Public Sewerage Network/Highway Drainage System, or domestic or watercourse systems due to a lack of adequate maintenance or surcharge from a reliant outfall.

These do not affect potential for future development outside the urban area, providing the attenuation systems for providing extra storage for surface water in the event of any severe weather events are of sufficient capacity or that effective event monitoring and warning systems are installed.

United Utilities and the EA will be consulted on all such future development issues and specifically on the need for appropriate higher levels of storm capacity for any new strategic housing development if it is assessed that there is a higher risk of both the intensity and incidence of severe weather events related to climate change. A robust planning policy which incorporates the latest climate change predictions should enable the risks to be managed without preventing required development which may have significant wider social and economic benefits.
13.0 Source-Pathway-Receptor Model

Following guidance in PPS25 a risk-based approach has been used to develop the sequential test in this SFRA. The risk based approach uses the source-pathway-receptor model. The SFRA is a strategic document which:

- avoids adding to the causes or ‘sources’ of flood risk.
- Manages the flood ‘pathways’ to reduced the likelihood of flooding by ensuring that the design and location of the development takes account of the flood defence infrastructure and utilises natural storage areas without influencing flood risk downstream.
- Reduces the adverse consequences of flooding on the ‘receptors’ by avoiding inappropriate development in flood risk areas.

![Diagram of Source-Pathway-Receptor Model]

- **Source**
  - Fluvial
  - Tidal
  - Sewerage Networks
  - Groundwater
  - Surface water Runoff

- **Pathway**
  - Flood Defence Systems
  - Overland Flow Paths
  - Infrastructure Failure
  - Inundation

- **Receptor**
  - People
  - Property
  - Infrastructure
  - Habitats
  - Statutory Sites
13.1 Source Pathways

**Fluvial**
- Inundation from rivers and watercourses
- Blockages of Culverts
- Blockages of Flood Channels

**Tidal**
- Overtopping of Defences
- Breaching of Defences
- Wave Action

**Groundwater**
- Most likely to occur in areas of low lying land with low hydraulic gradients and underlying permeable rock (aquifers)

**Sewerage Networks**
- Under capacity sewers
- Blocked/collapsed sewers
- Operational failure of pumping stations

**Surface Water**
- Sheet Runoff from adjacent land
- Surcharge from downstream watercourses
14.0 Historical Flooding

14.1 Overview

Historical overtopping of the existing sea defences has occurred during storm events. However, the final phases of ongoing works to replace the time expired seawall should address this risk. The coastal defences are inspected on an annual basis and maintenance is carried out regularly. Extra inspections are carried out following storm events so that relevant repairs can be carried out.

The most serious sea incursion in Blackpool in the last 50 years resulted from the storms of 11/12th November 1977, when a combination of high tides, high winds, overtopping and heavy rainfall, estimated as a 1 in 100 year event, caused major inundation in the Anchorsholme area of north Blackpool, with flooding up to one kilometre inland effecting hundreds of properties. This was in conjunction with serious flooding in the adjacent borough of Wyre in Cleveleys and Fleetwood. Major improvements to the sea defences were constructed in 1981 to protect this area.

Other sea incursions in Blackpool have resulted from a similar combination of high tides, high winds and high rainfall but have only affected more localised areas of the immediate adjoining catchments, particularly the South Shore and Central seafront areas, shown as more at risk on the Environment Agency Flood Map, and with major storm events almost annually.

The reconstruction of the coastal defences in South Shore (completed in 1999) and the Central area (ongoing) increases protection to these seafront areas of Blackpool.

Other historic flooding events in this area have been caused by substantial storm water flooding following severe rainfall events overloading the surface water sewer networks and aggravated by the surcharge of coastal surface water connections through the sea wall by seawater during exceptional high tides. Under the Coastal Waters Improvement Schemes, undertaken jointly by United Utilities and the Council during 1994 to 2003, all storm and surface water connections to the sea, via the sea wall, were removed and turned into the sewerage network effectively negating tidal influence.

The Harrowside Outfall is an exception and can still be utilised as an emergency overflow from the Lennox Gate Pumping Station and is allowed to surcharge without penalty, although maintenance of the 5 no. flap valves within the outfall structure is essential to avoid blowing the upstream highway manhole covers off due to wave pressure.

The disposal of storm and surface water therefore is now entirely dependent on maintaining the effective operational status of the Public Sewerage Network owned by United Utilities.
In 2000 and 2002 severe rainfall events resulted in widespread flooding to over 200 properties in the Anchorsholme area of Blackpool caused by the overloading of the sewerage network, which, together with a “capacity shut down” at the Treatments Works at Jameson Road and operational problems at Anchorsholme Pumping Station, caused combined sewage to surcharge from the network through highway drains, (onto the roads) and domestic drainage, (into private properties). Other separate flooding incidents in the same events were caused by inadequacy of localised sewers and were treated separately. The prior installation of a storage tank in parallel with the Warren Drive Culvert had provided some relief but was eventually overtaken. Levels will still require careful monitoring during intense rainfall events to ensure that early essential operational action is taken by United Utilities.

From 2001 to date there have been approximately 30 recorded flooding incidents in Marton Moss (Southern Drainage Area). These have been due to incidental blockages in watercourses and operational failures at Lennox Gate Pumping Station during intense rainfall events. Included are a number of domestic or localised incidents of flooding as a result of temporary watercourse or culvert blockages due to inadequate maintenance or deliberate interference with drainage outlets. Generally, the watercourse incidents do not relate to strategic flood risk caused by inadequate capacity, but are specifically related to incidental instances on existing systems which, once dealt with, eliminates the problem.

Constant monitoring of the operational status of the lift stations at Worthington Road, Midgeland Road, Dockypool Lane, Mosshouse Road, the stormwater storage facility in Highfield Road and in particular the main disposal station at Lennox Gate, by United Utilities, is essential during exceptional rainfall events to ensure systems operate efficiently and to prevent flooding incidents.

A condensed version of recorded flooding incidents is set out in the schedule below. There are numerous events not included which have not been recorded usually because they have not been reported, are retrospectively found in association with other events or part of a major flooding event.

For resultant information on any item reference would need to be made to the Incident Report File held in the Transport Section.
### 14.2 Schedule of Recorded Flooding Events

<table>
<thead>
<tr>
<th>Rep't Ref</th>
<th>Date of Compl'nt</th>
<th>Name</th>
<th>Address</th>
<th>NatGridRef</th>
<th>Complaint</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>02/09/01</td>
<td>Mr&amp;MrsStowel</td>
<td>Stockydale Lane-12</td>
<td>3334543272</td>
<td>Domestic flood from Septic Tank</td>
</tr>
<tr>
<td>002</td>
<td>25/05/02</td>
<td>Adjac't Dev'per</td>
<td>Rough Heys Lane</td>
<td>3327543335</td>
<td>Flooded land from inadequate SW runoff</td>
</tr>
<tr>
<td>003</td>
<td>03/12/02</td>
<td>Mrs Mctory</td>
<td>School Rd-Sunnybank</td>
<td>3339643216</td>
<td>Flooded land due to interference with outlet watercourse</td>
</tr>
<tr>
<td>004</td>
<td>20/12/02</td>
<td>Mr Holden</td>
<td>Jubilee Lane-Wonaker</td>
<td>3336743267</td>
<td>Flooding from blocked watercourse</td>
</tr>
<tr>
<td>005</td>
<td>16/01/03</td>
<td>Mrs Lowe</td>
<td>CherryTreeGardens-30</td>
<td>3333643372</td>
<td>Land and gardens flooded from blocked allotment watercourse</td>
</tr>
<tr>
<td>006</td>
<td>09/04/03</td>
<td>Mr&amp;MrsGunn</td>
<td>Warley Rd - 351</td>
<td>3321543809</td>
<td>Fly tippng causing flooding</td>
</tr>
<tr>
<td>007</td>
<td>10/04/03</td>
<td>Mr&amp;MrsGreen</td>
<td>Cherry Tree Rd - 84</td>
<td>3337343430</td>
<td>Flooding of gardens from blocked highway watercourse</td>
</tr>
<tr>
<td>008</td>
<td></td>
<td>UnitedUtilities</td>
<td>General</td>
<td>EH 40</td>
<td>Hydrogen Sulphide -</td>
</tr>
<tr>
<td>010</td>
<td>18/05/03</td>
<td>BBC</td>
<td>St Annes Rd - Palatine</td>
<td>3314943365</td>
<td>Flooding of School Playing Fields and construction site from blocked</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>watercourse</td>
</tr>
<tr>
<td>011</td>
<td>28/05/03</td>
<td>BBC-College</td>
<td>School Rd -The Poplars</td>
<td>3334043190</td>
<td>Flooding of land and Playing Fields as SW drainage is no longer operable</td>
</tr>
<tr>
<td>012</td>
<td>14/07/03</td>
<td>BBC Allotm'ts</td>
<td>DaunteseyAve-6(rear)</td>
<td>3336343697</td>
<td>Independent clearance of watercourse by tenant potential flooding outlet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>not maintained by BBC</td>
</tr>
<tr>
<td>013</td>
<td>31/07/03</td>
<td>MrMrsHassall</td>
<td>School Rd-DunnoCott'ge</td>
<td>3339743218</td>
<td>Continued flood'g as at Sunnybank</td>
</tr>
<tr>
<td>014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>015</td>
<td>21/08/03</td>
<td>BBC-SM/LS</td>
<td>Pixie Farm Developm'tt</td>
<td>3337443533</td>
<td>Inappropriate culvert connection</td>
</tr>
<tr>
<td>016</td>
<td>25/08/03</td>
<td>BBCHighways</td>
<td>Beaufort Ave - 67/69</td>
<td>3311644016</td>
<td>Highway Subsidence</td>
</tr>
<tr>
<td>017</td>
<td>28/09/03</td>
<td>R.Hargreaves</td>
<td>Lee Rd &quot;Lawnswood&quot;</td>
<td>3338543371</td>
<td>Land flooding due to interference</td>
</tr>
<tr>
<td>018</td>
<td>28/09/03</td>
<td>BBC(Pye)</td>
<td>Cherry Tree Road</td>
<td>3335043410</td>
<td>Neighbours Complaint of flooding from School Land</td>
</tr>
<tr>
<td>019</td>
<td>27/11/03</td>
<td>Mr Welch</td>
<td>Jubilee Lane-The Swifts</td>
<td>3336043295</td>
<td>Land flooded due to surcharged Public Sewer</td>
</tr>
<tr>
<td>020</td>
<td>28/11/03</td>
<td>Mr C Smith</td>
<td>Whalley Lane</td>
<td>3333543349</td>
<td>Flooding of Private Rd due to blocked Highway watercourse</td>
</tr>
<tr>
<td>021</td>
<td>28/11/03</td>
<td>Mr C Smith</td>
<td>Whalley Lane</td>
<td>336043343</td>
<td>Flooding due to surcharged Highway watercourse</td>
</tr>
<tr>
<td>022</td>
<td>26/12/03</td>
<td>WJBB</td>
<td>Marton Area</td>
<td>3336943305</td>
<td>Flooding</td>
</tr>
<tr>
<td>023</td>
<td>26/01/04</td>
<td>Mrs Procter</td>
<td>Bennetts Lane - 2</td>
<td>3327543280</td>
<td>Blockage of pipebridge</td>
</tr>
<tr>
<td>024</td>
<td>03/02/04</td>
<td>Ms K Pickup</td>
<td>Snowshill Crescent 18</td>
<td>3327044113</td>
<td>Flooding from blocked dyke</td>
</tr>
<tr>
<td>025</td>
<td>02/03/04</td>
<td>Mr C Brown</td>
<td>School Rd-Strathallan</td>
<td>3335043200</td>
<td>Watercourse interference</td>
</tr>
<tr>
<td>026</td>
<td>13/05/04</td>
<td>Mr Leonard</td>
<td>Eastbank Ave-rear 34</td>
<td>3334143340</td>
<td>Waterc'rse interfer'ce-Whalley L'ne</td>
</tr>
<tr>
<td>027</td>
<td>22/06/04</td>
<td>Highways</td>
<td>StationTerr'ce-Hotel</td>
<td>3309043380</td>
<td>Highway Subsidence</td>
</tr>
<tr>
<td>028</td>
<td>29/06/04</td>
<td>Parks&amp;Leis</td>
<td>LawsonRd Allotments</td>
<td>3334043530</td>
<td>Surcharge and drainage problems</td>
</tr>
<tr>
<td>029</td>
<td>10/08/04</td>
<td>Mr.G.Hartley</td>
<td>Chapel Rd-Pen-y-bont</td>
<td>3337043310</td>
<td>Surcharge and flooding</td>
</tr>
<tr>
<td>030</td>
<td>13/08/04</td>
<td>Mr.J.Smith</td>
<td>Kitty Lane - Stables</td>
<td>3336343181</td>
<td>Watercourse interference</td>
</tr>
<tr>
<td>031</td>
<td>16/01/06</td>
<td>BBC(Pye)</td>
<td>School Road</td>
<td>3334043200</td>
<td>School Flooded</td>
</tr>
<tr>
<td>032</td>
<td>02/02/06</td>
<td>Mr Eaves</td>
<td>231 Midgeland Road</td>
<td>335143235</td>
<td>Land Flooded</td>
</tr>
</tbody>
</table>
15.0 Climate Change

PPS 25 states that the effects of climate change should be taken into consideration during development planning. Annex B of PPS 25 provides details of the allowances that should be made for climate change when assessing flood risk. The Environment Agency Flood Maps do not currently take account of climate change but PPS 25 requires that the Regional Spatial Planning process should do so.

The uncertainty associated with climate change and the effects of sea level rise could have a significant future impact on the flood risk to low lying areas. It has therefore been identified that areas of low lying land should have further investigation at the time of development taking into account the climate change guidance of the time to study the possible effects of a breach scenario.

There was no flood modelling or mapping undertaken specifically for this study. However, the sustainability of the potential land use allocations, in terms of the main strategic flood risk of tidal inundation, has been undertaken based on the design specifications of the coastal protection structures all of which take account of the climate change guidance at the time.

The section of the central seawall that is currently under construction has been designed using hydraulic modelling. As the projects where started over ten years ago the guidance over climate change was slightly different. The 100yr life of the wall has been designed to withstand a 1 in 200 year storm event taking into consideration climate change. The guidance at the time gave an increase in water level of 4mm per year and an increase in wave heights of 10%. There was no guidance concerning increased rainfall. As all current works have followed this guidance and all future works will follow future guidance the long term sustainability of the development sites is assured.

Shoreline Management Plans (SMP’s) are high-level documents that state the policies of how the coast will be managed for the next 100 years. The current SMP was adopted in 1999 and management policies within state that the coast of Blackpool will continue to be defended against flooding and coastal erosion (Hold the Line). The SMP is due for review and this is expected to be complete by 2010. Any changes, which come out of the review will need to be taken into consideration prior to developments, at that time, as they could affect the long-term viability of the developments. In advance of this completed review, the assessments and recommendations for the strategic development sites considered in this SFRA in terms of both suitability for development and necessary mitigation fully reflect the requirements of PPS25 for sites in flood risk areas.
16.0 Application of the Sequential and Exception Test

A sequential test has been undertaken for each potential development site using the source pathway model. The results of the sequential test indicate where appropriate development could take place, and where, in the central area, sites may require further scrutiny and exception testing.

17.0 Scoping of the Borough

An initial broad scoping study has been undertaken for the Borough, using the EA’s flood risk maps and known flooding from other sources. As a broad outline the key sources and pathways are shown below, with the main historical flooding areas as shown in detail at Appendix B3.

<table>
<thead>
<tr>
<th>Area</th>
<th>Main Source</th>
<th>Main Pathway</th>
<th>Historical Flooding</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackpool</td>
<td>Coastal erosion to frontage, surface runoff and sewer flooding to remainder of area.</td>
<td>Coastal storms causing erosion of defences. High volume of surface water into road gullies and combined sewage networks. Majority of the area is urban and hard surfaced. Other pathways due to limited hydraulic gradient and/or sewerage network failure.</td>
<td>Coastal erosion up to early 20th century. Number of reports of sewer and road flooding particularly around the Anchorsholme area. There has also been historic flooding in the Central, South Shore, Marton and Promenade areas</td>
<td>Significant investment has been made in coastal defences on the Blackpool frontage and to additional storm storage facilities on the adjacent improved sewer networks. Constant monitoring during exceptional rainfall events remains essential</td>
</tr>
</tbody>
</table>
18.0 Potential Development Sites within Blackpool

18.1 Overview

Flood risk considerations within PPS25 are only one of a complex range of criteria which planners need to take into account when allocating development sites. There are a number of constraints from national policy guidance and the Regional Spatial Strategy - notably, the national requirement to focus new housing on brownfield sites, with restrictions on development in green belt, sensitive countryside areas, and sites of landscape/nature conservation interest.

Blackpool, however, is a major urban area, with no strategic areas of green belt and no nationally recognised status of remaining lands in the countryside (such as National parks, Areas of Natural Beauty). In nature conservation terms there are also no internationally protected sites. Marton Mere however is a national Site of Special Scientific Interest (SSSI) and a stipulated Biological Heritage Site (BHS) where there are strict controls against development.

The intensely urban nature of the town increases the potential importance of the remaining areas of open space and attractive landscaping and there are a number of existing sites within the Borough which are protected as important recreational assets and local sites of nature conservation interest in the existing adopted Local Plan.

Outside of these sites, however, and in strategic terms for the purpose of the site specific flood risk assessment, the potential development sites included in this SFRA encompass :-

- All sites outside the existing urban area other than the limited areas of adjacent green belt
- All other undeveloped land sites within the existing urban area greater than 1 hectare
- An additional assessment of broad areas of redevelopment potential within the existing urban area to reflect Blackpool’s current major programme of town centre, resort and inner area regeneration.

Against this background framework, the SFRA, which follows, is focussed on the assessment of strategic sites for future development. All new strategic levels of proposed development should only be brought forward following consideration of the recommendations within this report, and where necessary undertake additional modelling work to demonstrate the suitability of any proposed mitigation measures.
Blackpool is identified as a priority area for growth in the NWRSS, with a substantially increased level of housing provision requirement of 8,000 dwellings (2003-2021). NWRSS also recognises the need for housing market renewal, tourism regeneration, economic growth, and in wider terms identifies the status of Blackpool as a focus for retailing, administration, medical services and as a transport hub.

The following assessment therefore concentrates on strategic flood risk in a range of alternative sites within Blackpool’s tightly constrained boundary, and limited remaining areas of land, to meet future development needs. All the potential new Greenfield development sites are within Zone 1 or Zone 2. One further site, Warren Drive, is for completeness included in the assessment as it comprises the only other significant area of potential greenfield development land within Zone 3a. The site has existing planning approval for landscaped office development, but is allocated as urban greenspace and safeguarded from other forms of development by existing planning policy.

Some parts of the Central Area closest to the central seafront are within Zone 3a where flood risk is defined as high, but where account needs to be taken of existing sea defences protecting the area, whilst taking account and considering the risk of breach of these defences.

Developers must show how they fit with the framework below and have applied the sequential test and where appropriate the exception test to justify inclusion of the site, within the considerations of this SFRA and PPS25.

The sites as a whole are shown in Appendix B4 on Plan B1, and the individual sites are shown in more detail on Plans B2 – B10 respectively.

**Framework for Development within PPS25 Zone 1 Low Risk**

Minor developments that have been demonstrated to fall outside of the current known flood risk areas and have no known flood risk from other sources and do not increase the risk of flooding or the current flood risk areas can be developed without further consideration of strategic flood risk issues. However permitted new development must consider strategic run-off and drainage issues to ensure there are no detrimental effects to existing development.

**Framework for Development within PPS25 Zone 2 Low to Medium Risk**

Minor developments that fall within flood Zone 2 are considered to be generally suitable for development. Where essential infrastructure or critical development such as hospitals or schools are considered, alternative sites should be sought. New development should where possible be constructed above the 1% peak flood level for fluvial sources and 0.5% for tidal sources with sufficient allowance for freeboard and climate change scenarios for a period of 125 years. Proposals for new development within this zone should be accompanied by a site-specific flood risk assessment SSFRA to delineate these envelopes. The SSFRA should also consider the effects of the new
development on existing properties to ensure that it does not worsen existing flooding conditions.

**Framework for Development within PPS25 Zone 3 High Risk**

Development within PPS25 Zone 3 will not normally be allowed outside of the core areas of development.

**Development within functional flood plain PPS25 Zone 3b,**

There are no areas within Blackpool that are considered as functional flood plains.

**Development within undeveloped or sparsely developed areas Flood Zone 3b**

Development within this area would not normally be considered appropriate except for essential infrastructure. New development must demonstrate that there is no net loss of floodplain storage, that flood risk elsewhere is not increased and that there is no impedance to water flow. There are currently no areas within Blackpool that are classed as Zone 3b.

**Development within currently developed areas Flood Zone 3a.**

Although flood risk within zone 3a is defined as high, this will not act as an embargo against new development. However any new development would have to take account of the condition of the existing defences protecting the area and the effects of the development on existing flood risk. To this end significant new development within this zone should be accompanied by a detailed SSFRA, which should in most cases include a detailed computational model to demonstrate flood levels following a breach fall within acceptable limits. The assessment should also demonstrate the standard of existing defences. Where high standards of defence and low levels of flooding combined with low flow rates exist, development would not normally be resisted. Developers should consider flood proofing of properties, alternative uses of lower storey levels, appropriate raising of ground levels and sustainability of existing defences in their proposals. Mitigation to all development should follow the general principles for proposed risk management measures for development areas in section 22.0 of this SFRA.

**18.2 Assessment of the Central Area (see Plan B2)**

The defined Inner Area boundary on the current Blackpool Local Plan includes all the main town centre, resort neighborhood and inner area residential neighborhoods which are the focus for future regeneration and potential redevelopment in the next 10-20 years.

No assessment is made of individual sites within this area – although it is noted much of this area is within flood zone 1 (low probability) including many of the key future development sites identified in the existing Local Plan such as the Talbot Gateway and Rigby Road.
Some parts of the central area closest to the central seafront are within Flood Zone 3a, as defined by the EA flood maps. This and the inner area as a whole is reliant on flood defences to prevent flooding and tidal inundation. Flooding within the area has been assessed for breaches in the coastal defences using the following assumptions:

- the seawall, which is currently being buried during the construction of the new works, will also be breached
- the breach will be able to be repaired very quickly, such as to arrest any further erosion
- no flooding mechanisms other than those used in the EA flood maps have been considered

Such a breach would allow flood water to enter the area currently shown as flood zone 3a and 2. Any proposed developments within these areas should have a site specific flood risk assessment taking account of the climate change allowances at the time. The current defences provide a high standard of protection to existing properties of all types and the council has a strategy to sustain the defences in the long term. There is currently work being undertaken to replace time expired seawall along a 3.2km stretch of central Blackpool which has been designed with a life of 100yrs. The new seawall will continue to protect the central area of Blackpool from coastal erosion and flooding.

The EA Flood Maps do not take into consideration the upgraded Coastal Defences in the zoning procedure or consider the effects of climate change, although PPS25 requires that it should be taken into account in the Spatial Planning Process.

The uncertainty associated with climate change and the effects of sea level rise could have a significant impact on the flood risk to low lying areas. This assessment takes the view that it is not appropriate to completely mitigate against flood except in the most onerous future circumstances. Development should still be allowed in areas where the sustainability of the defences is assured and where the flood depth does not pose a risk to human life.

**Shoreline Management Plan**

In order to prevent tidal inundation and coastal erosion the Council commenced a program of major sea defence and coastal protection works in 1981, which is scheduled for completion in 2009 with the current works being undertaken along the Central Promenade, and these have been designed to prevent floods in a 1 In 200 year storm event.

The central area as a whole is reliant on these flood defences to prevent flooding and tidal inundation. At present the management policy set out in the Shoreline Management Plan (SMP) for Blackpool allows for the continued upkeep of the defences, however the management policies are under review.
in the second round of SMP’s which are currently being undertaken. The outcome of these reviews should be taken into consideration in the development, at that time, as the policies set out the management of the coast for the future and the extent of future defence that can be expected for the area. No change is anticipated in the circumstances of Blackpool’s heavily built up urban area, with the coastal defences maintained along the present promenade frontage. Current remodeling and enhancements to the main central Blackpool seafront include five new headlands which effectively extend the urban promenade landscape seawards.

There have been some flooding incidents in the Central Area due to incapacity problems with the Public Sewerage System that have been aggravated by the operational philosophy of Manchester Square Pumping Station, the Coastal Transfer Main and Jameson Road Treatment Works, which are managed by United Utilities.

Redevelopment of the Central and South Coastal areas could result in a planned expansion of 1000 + net dwellings with the relevant increase in population. The impermeable surface areas however in so far as the concentration of surface water is concerned, is not likely to be radically affected as it is already mostly hard surfaced, and there are therefore no strategic flood risks associated with such regeneration to prevent developments.

The scale of any potential redevelopment is uncertain and depends on wider issues in terms of the regeneration of the town, consequent changes in the property market, development decisions, and funding programmes. Any significant level of new development that does come forward, however, will be entirely focused within the existing heavily built up urban area – particularly closest to the town centre and the central seafront. The only significant “green areas” within the central area that lies within Zone 3a comprise:

- Palatine and St Cuthberts school playing fields
- Bridge House Road open space and allotments
- Proposed Yeadon Way open space.

All of these areas remain safeguarded from development as greenspace in the existing statutory Local Plan. No change to this status is proposed, and no greenspace in the central area thus forms part of the potential strategic development sites being considered in the SFRA.

The scale of potential redevelopment and the specific identification of brownfield redevelopment sites that may come forward at this point in time within that part of the central area within Zone 3a is uncertain. However, any significant new redevelopment of brownfield site will need to be accompanied by a detailed SSFRA, and include a detailed assessment of the implications of a breach of the defences for the development and appropriate mitigation.
Current major sites identified for development in the Adopted Blackpool Local Plan within Zone 3a comprise two sites identified for major tourism development. These sites comprise:

- The former Central Station Site (see Plan B2, Central Area)
- Rigby Road (see Plan B2, Central Area)

These are the only 2 strategic development sites which are identified in the Core Strategy Issues and Options Report. The future development of these sites is under review but the form of development likely to come forward would be expected to fall within the “Less Vulnerable” class in Table D2 of PPS25, which is appropriately located in Zone 3a. However, development could come forward on the Rigby Road site that would include a minority residential component. Some residential redevelopment may also come forward on the former railway land/ car park corridor, also shown on Plan B2.

A flood risk assessment is required for all development (excluding minor development, as defined by footnote 7 on page 7 of PPS25) which should identify and assess the risks from flooding to and from the development and demonstrate how these flood risks will be managed. Any residential within Zone 3a should only be brought forward if developers can demonstrate that it meets the requirements of the Exception Test.

In accordance with the requirements of the Exception Test as set out in PPS25, an assessment of the residual risk as set out above assumes that any breach of the flood defences would potentially allow water into each of the above sites within Zone 3a shown on Plan B2.

The requirements for the development of these sites and the Exception Test to be passed are that:

a) It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risks.

b) The development should be on developable previously developed land

c) An FRA must demonstrate that the development will be safe without increasing flood risk.

In terms of a) the three specific sites identified on Plan B2 are all integral elements and main components of the current Local Plan strategy for resort regeneration. They are key elements of the development framework set out in the Plan to bring fundamental change to the main resort areas, and to assist the rejuvenation of the adjoining resort and residential neighbourhoods.

The key tourism sites and any potential development sites along the central corridor are located close to the seafront and focused on the resort core. They comprise prime opportunities for redevelopment which sustainably and economically is essential is located at the heart of the resort to provide new
visitor attractions or alternative new development proposals in response to resort decline in these areas.

“Inner Area Regeneration” focusing new development and redevelopment on the Central Area is one of the specific spatial options set out in the Core Strategy Issues and Options Report prepared by Blackpool Council in June 2008 which the SFRA has been prepared to support.

It is a legal requirement that the Core Strategy is subject to SA. Hyder Consulting were commissioned by the Council to undertake an “Assessment of Strategic Options”. Their summary of the key strengths and weaknesses is set out below:

“Option 2 (Inner Area Regeneration) performs very strongly against many of the SA objectives, notably because it focuses development into the areas most at need of regeneration, in areas that could potentially spearhead wider regenerative efforts given its central location at the heart of the town, and also in areas that are well serviced by public transport and essential services. There is potential for cumulative benefits associated with wider regeneration proposals.

However, it is essential that growth in this area provides sufficient balance between residential growth and growth in the tourism industry. This is a central area of the Blackpool resort and could be a clear driver for regeneration of the tourist offer. It should also be noted that there are significant other regeneration proposals in and around this area which would assist both residential and commercial regeneration.

The principle of developing in the inner urban areas along with other regeneration schemes should be taken forward”.

In terms of Exception Test requirement b), all central area sites are on previously developed land.

In terms of Exception Test requirement c), it will be the responsibility of the developer bringing forward any proposed development within these areas to ensure through the SSFRA that new development would be safe without increasing flood risk, and would need to consider and include appropriate flood mitigation measures.

A Drainage Area Plan (DAP) has been developed by United Utilities and they must be consulted to provide current information on future improvement proposals which may affect development issues.

There is a confident forecast of changing tidal and seasonal weather characteristics which, together with the potential increase to consequential flows, will require careful analysis against the requirement of additional sewer capacity. Early consultation with United Utilities as the Sewerage Undertaker will be of the utmost importance to enable adjustments to the DAP’s and the provision of adequate planned budgetary requirements.
18.3 Assessment of Strategic Undeveloped Land Sites Elsewhere within the Existing Urban Area

All sites being considered elsewhere within Blackpool for potential new development lie within either Zone 1 or Zone 2 of the EA Flood Zone Map. Blackpool Council is committed to continuing to take a proactive approach incorporating, optimising and promoting Sustainable Drainage Systems, controlling discharges from watercourses and the provision of extra storage for surface water outside the sewerage network.

Consultation with United Utilities is again essential to enable DAP adjustments and the opportunity to reserve the relevant budgetary requirements.

Outside the Central Area there are 6 potential Strategic sites, listed below, which are still within the existing urban area and that are included in this assessment

**Ryscar Way and Blackpool Technology Park (see Plan B3)**

The northern area of the borough has a potential for flooding during high rainfall as this extensive catchments area discharges into the public sewer network which is entirely reliant on the operational efficiency of its discharge. The Northern Area Culvert was installed 1960s to accommodate flows from wider potential development in northern and western areas with a lateral connection down Warren Drive to serve the north east area. Following post development capacity problems in 1980/90’s, an extensive storm water storage tank was installed in parallel with the Warren Drive trunk sewer, together with a large penstock controlled storm water storage tank in Moor Park on the Northern Area Culvert, to accommodate surplus surcharge during extraordinary rainfall events and to comply with the requirements of the Coastal Waters Clean Up.

Despite this additional infrastructure two severe rainfall events, in 2000 and 2002, resulted in flooding to highways and properties but was attributable to operational failure.

Bathing Water constraints on the operating philosophy of Anchorsholme Pumping Station, the Coastal Transfer Main and Jameson Road Treatment Works managed by United Utilities together with the potential for Electrical and Mechanical failure, may still compromise storage capacities within the network and constant monitoring during severe rainfall events is essential to avoid a repetition of extensive flooding.

The capacity of the sewers for any potential development within these site areas would need to be considered in detail and appropriate mitigation measures taken.
These adjoining sites are in the North East of the borough and lay in Flood Zone 1 on the EA flood zone maps. There are no known tidal or fluvial sources of flooding in the area or constraints on development.

**Leys Nursery** (see Plan B4)

The area is towards the centre of the Borough and lies within Flood Zone 1 on the Environment Agency flood maps. There are no known sources of tidal or fluvial flooding in the area or constraints on the development of this site.

**Cornford Road** (see Plan B5)

This area in the south of the Borough lies within Flood Zone 1 on the Environment Agency Flood maps. There are no known sources of flooding or constraints on the development of this site. There is an existing surface water pumping station operated by United Utilities who should be consulted regarding any future proposals which may increase run-off to this station.

**Preston New Road** (see Plan B6)

This development area lies in the south east of the Borough within Flood Zone 1 on the Environment Agency Flood maps. There are no known sources of flooding in the area and as such there are no constraints on the development within the site.

**Warren Drive** (see Plan B7)

This site lies in the North of the Borough within Flood Zone 3a on the Environment Agency Flood maps and is not being considered for potential new development. It is included in the SFRA for the sake of completeness, as the only significant remaining potential greenfield development land within Zone 3a in Blackpool. Ostensibly this means there is a high risk of flooding and only developments as water compatible or less vulnerable should be allowed in this area. Essential infrastructure or developments classed as more vulnerable should only be allowed in this area if the exception test is followed and flood proofing should be built into designs.

However the Environment Agency Flood maps do not take into consideration the defence structures that are already in place and as such a site-specific flood risk assessment should be done prior to development following the minimum requirements set out in Annex E of PPS25.

While the existing defences mitigate the risk from direct tidal inundation, the continued risk from breach of the sea defences, stormwater flooding and from infrastructure failure cannot be ignored. This area is immediately adjacent to a flood susceptible infrastructure system, with two arterial infrastructures joining at the junction of North Drive and Warren Drive (see Appendix B3). The problems relate to the adjacent storage water storage tank on site and from
the on site watercourse network. Flood proofing of properties and alternative uses for ground floor rooms should be considered. Developers should seek opportunities to reduce the overall level of flood risk in the area through the layouts and forms of development and with the implementation of Sustainable Drainage Systems.

There is a risk from flooding due to ordinary watercourses by default, as many open watercourses discharge directly into public sewers. These surface water flows incur on the capacity of the public sewer system. When excessive rainfall occurs, this has the potential to cause flooding to highways, properties and land.

The lands at Warren Drive have existing planning permission for landscaped office development but also form part of a wider area allocated as ‘urban greenspace’ in the adopted Local Plan, where proposals for landscape renewal and enhancement will be pursued. Retention of the land as greenspace and increased planting would reduce run-off and help alleviate and further maintain adequate drainage capacity in the area.

18.4 Assessment of Strategic Undeveloped Land Sites outside of the Existing Urban Area

West of Staining (see Plan B8)

The area is on the eastern fringe of the Borough and lies within Flood Zone 1 on Environment Agency flood maps. There is a comprehensive history of flooding due to blockages and collapses in culverted sections of Staining North Dyke which discharges into Main Dyke adjacent to Marton Mere. The Council own and maintain all the watercourses and outfalls associated with this area and vigilant monitoring will be required to maintain its efficiency. Increased surface water run off due to inevitably higher impermeability factors of development will have to be taken into consideration together with an upgrade of the outfall system. On-site mitigation measures would be required to address such issues and Sustainable Drainage Systems to contain and control excess surface water run-off will need serious consideration.

Mythop Road (see Plan B9)

The area is on the eastern fringe of the Borough and almost the whole of the site lies within Flood Zone 1 on Environment Agency flood maps, with a narrow sliver of land on the north east edge of the site shown in flood zone 2. There are no recorded flooding events on this site or known sources of flooding in the area. The watercourse system discharges out of the borough. Flows are co-extensive with an adjacent development area which culverts under Mythop Road and relies on its adequate maintenance. Increased surface water run off due to inevitably higher impermeability factors of
development will have to be taken into consideration together with careful
evaluation of the outfall system. On-site mitigation measures may be required
and Sustainable Drainage Systems to control excess surface water run-off will
need serious consideration.

Marton Moss Sites (see Plan B10)

Some areas of the Marton Moss Sites are punctuated by areas of Flood Zone
2 on the Environment Agency maps which mean they have a likelihood of
flooding during a 1 in 1000 year event. However, these lands are so classified
by virtue of their lower height and therefore higher risk of tidal inundation, a
risk which has effectively been addressed by coastal defence works.

Marton Moss is not a flood plain or washland, and is not now at any significant
risk from fluvial or tidal flooding. The main difficulty that needs to be resolved
for any potential new development will be the drainage of surface water
without causing flooding or pollution of the underlying aquifer, and without
sterilizing valuable development land.

PPS25 also requires that the residual risk from a breach of the defences
should be considered, with the areas within Zone 2, by definition, those that
would also be most susceptible to surface stormwater flooding in respect of
excessive rainfall events. The risk of flooding within the area has been
assessed for breaches in the coastal defences using the following
assumptions:

- the seawall, which is currently being buried during the construction of
  the new works, will also be breached
- the breach will be able to be repaired very quickly, such as to arrest
  any further erosion
- no flooding mechanisms other than those used in the EA flood maps
  have been considered

Such a breach would allow flood water to enter the area currently shown as
flood zone 2. Any proposed developments within these areas should have a
site specific flood risk assessment taking account of the climate change
allowances at the time.

Historically, the position is:
- The southern area of Marton moss was largely unsewered before
  1930.
- In 1936 the Lennox Gate pumping station was built which subsequently
  reached its full capacity and was upgraded in 1995/6 in conjunction
  with the Coastal Waters clean up.
- In 1950/51 a land drainage system was implemented for the discharge
  of water for the whole of the Moss to the Eastern Interceptor at
  Highfield Road.
- In 1956 and 1963 first –time drainage schemes were constructed for
  existing and any new properties to be used in connection with viable
In the 1970-1980s a scheme for the development of 32 hectares of land off Highfield Road was implemented. As the existing drainage system had insufficient capacity to accommodate the extra surface water run-off, a large storm retention tank, incorporating a separate foul pumping facility, was built to store these flows with a pumped discharge into the Eastern Interceptor in Highfield Road.

This development, together with the discharges from existing and limited permitted new properties, has resulted in the culverts and pumping stations being close to capacity and overloaded during exceptional rainfall events.

The Council has consistently refused applications and allocated no further lands for development, with a key consideration, aside from any planning assessment of development need, being the absence of adequate drainage capacity for development. This is an issue both on site with regard to any proposed development land, and off-site with respect to the capacity of the existing sewerage network and Lennox Gate pumping station. The only recent extra demands placed on the system have been small or single house developments.

In the future, any potential strategic level of new housing or other development on the Moss will require a new separate system of drainage to be implemented in accordance with PPS25 requirements, seeking to minimize surface water run-off through Sustainable Drainage Systems.

The way forward would depend on how much land, if any, was to be developed in the long term. A new Drainage Area Plan (DAP) would need to be produced for the whole of the Moss and any developer would be required to submit detailed proposals to both the Council and United Utilities, setting out the potential increased main drainage requirements and taking into account the shorter and longer term proposals for the future of the Moss.

The implications in terms of flood risk of the release for development of each of the respective areas of remaining undeveloped areas of land on the Moss are set out in turn below:

**A. Chapel Road area (between Yeadon Way and Progress Way)**

Almost the whole of this site lies within Flood Zone 1 (low probability) on the Environment Agency flood map although the western edge of this site lies within Flood Zone 2. This zoning, historically, was in relation to tidal flooding from the primary drainage watercourse of the Borough known as Spen Dyke. The whole of this watercourse has been incorporated in development and no longer exists in original form. Its only connection with tidal influence is through Manchester Square Pumping Station. Recorded flooding incidents have been caused by blockages due to a lack of adequate maintenance, deliberate interference or the electrical/mechanical/operational failure of transfer installations. Development in the immediate vicinity of watercourses could be susceptible to flooding and therefore building development should not be
allowed within 10m of a watercourse. The level of flooding is only significant to localized problems and should not preclude wider development. Care should be taken to create Sustainable Drainage Systems during development to prevent watercourses and the receiving sewerage network from being inundated during exceptional rainfall.

B. Between Bennetts Lane and Progress Way

The Northern and Eastern part of this site lie within Flood Zone 2 (medium probability) on the Environment Agency Flood maps. This zoning, historically, was in relation to tidal flooding from the primary drainage watercourse of the Borough known as Spen Dyke. The whole of this watercourse has been incorporated in development and no longer exists in original form. Its only connection with tidal influence is through Manchester Square Pumping Station and must now be regarded as largely irrelevant. Recorded flooding incidents have been caused by blockages due to inadequate maintenance.

Residual risk of breach of sea defences and its higher susceptibility to stormwater flooding should be considered for this site.

Development in the immediate vicinity of the watercourses could be susceptible to flooding and therefore building development should not be allowed within 10m of a watercourse. Care should be taken to create Sustainable Drainage Systems during development to prevent watercourses and the receiving sewerage network from being inundated during exceptional rainfall.

C Between Progress Way and School Road

Large areas of these sites lie within Flood Zone 2 on the Environment Agency Flood maps. This zoning, historically, was in relation to tidal flooding from the primary drainage watercourse of the Borough known as Spen Dyke. The whole of this watercourse has been incorporated in development and no longer exists in original form. Its only connection with tidal influence is through Manchester Square Pumping Station and must now be regarded as irrelevant. Recorded flooding incidents have been caused by lack of adequate maintenance, deliberate interference and the operational failure of the receiving sewerage network.

Flooding within the area has been assessed for breaches in the coastal defences using the following assumptions:

- the seawall, which is currently being buried during the construction of the new works, will also be breached
- the breach will be able to be repaired very quickly, such as to arrest any further erosion
- no flooding mechanisms other than those used in the EA flood maps have been considered
Such a breach would allow flood water to enter the area currently shown as flood zone 2. Any proposed developments within these areas should have a site specific flood risk assessment taking account of the climate change allowances at the time and its higher susceptibility to stormwater flooding.

Development in the immediate vicinity of the watercourses could be susceptible to flooding and therefore building development should not be allowed within 10m of a watercourse. Care should be taken to create Sustainable Drainage Systems during development to prevent watercourses and the receiving sewerage network from being inundated during exceptional rainfall.

D – Between School Road and Division Lane

These sites lie in Flood Zone 1 of the Environment Agency Flood maps and as at low risk from flooding. Recorded flooding incidents are the result of inadequate maintenance, deliberate interference or operational network failure. Some remaining nominated Main Rivers are in this area but have been integrated into the area development. Development in the immediate vicinity of watercourses could be susceptible to flooding and therefore building development should not be allowed within 10m of a watercourse. Care should be taken to create Sustainable Drainage Systems during development to prevent watercourses and the receiving sewerage network from being inundated during exceptional rainfall.

19.0 Access routes to the Area

Access routes need to be considered to all the above sites as they have the potential to restrict the emergency services vehicles, emergency response and evacuation procedures to affected properties should they become flooded. All areas within this assessment lie outside of Flood Zone 3 and therefore would be expected to remain passable during events up to the 1000-year event.

20.0 Existing Flood Defence Infrastructure

20.1 Coastal Defence Assets

The total length of coastline within the Borough is defended from coastal erosion and tidal inundation through the use of hard defences. The defences have been constructed in phases dating from 1900. The current policy of maintenance is prioritised on the basis of need along all sections of the seawall. The work carried out is prioritised in such a way that breaches of the existing defences are avoided.

Due to the integral form of protection offered by the sea defences failure of any section could lead to flooding of large areas. There is a program of work to replace the coastal defences in stages, which began in 1981 with the
replacement of seawall at Anchorsholme Park. Work has been undertaken in phases since with some of the larger schemes being the regeneration of South Beach and works at Bispham to replace the time expired seawall and defend the coast from erosion and tidal inundation. The current works to replace 3.2km of time expired seawall between south pier and north pier is the penultimate scheme in the program with works at the Northern Boundary to follow. The works to date have all followed guidelines at the time of their design to allow for climate change and sea level rise with the current works allowing for a 4mm rise in sea level per year and 10% increase in wave height for the design life of 100years. The current guidance in PPS 25 has allowances for larger increases in sea level rise and also looks at increases in rainfall intensity. Any future designs will take into account the current precautionary sensitivity ranges at the time of design.

The operational services department of the Council maintains the coastal defences in Blackpool. A brief description and risk assessment for each of the defence lengths is summarised below:

<table>
<thead>
<tr>
<th>Management Unit</th>
<th>Zone</th>
<th>Highest Risk</th>
<th>Life Expectancy</th>
<th>General Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/2</td>
<td>Starr Gate to Sandcastle</td>
<td>L</td>
<td>&gt;40</td>
<td>Seebee revetment with wave return wall completed within the last decade</td>
</tr>
<tr>
<td></td>
<td>Sandcastle</td>
<td>M</td>
<td>&gt;10</td>
<td>Sloping revetment with vertical wall</td>
</tr>
<tr>
<td></td>
<td>South Pier to Central Pier</td>
<td>L</td>
<td>&gt;40</td>
<td>This area is currently under construction and will consist of a stepped revetment with berm and wave return wall.</td>
</tr>
<tr>
<td></td>
<td>Chapel St. to New Bonny St.</td>
<td>L</td>
<td>&gt;40</td>
<td>This area is currently under construction and will consist of stepped revetment with berm and wave return wall.</td>
</tr>
<tr>
<td></td>
<td>New Bonny St. to Central Slades</td>
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<td>&gt;40</td>
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<tr>
<td>Location</td>
<td>Type</td>
<td>Distance</td>
<td>Description</td>
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<tr>
<td>--------------------------------------------------------</td>
<td>------</td>
<td>----------</td>
<td>----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Central Slades to Cenotaph</td>
<td>L</td>
<td>&gt;40</td>
<td>This area is currently under construction and will consist of stepped revetment with berm and wave return wall</td>
<td></td>
</tr>
<tr>
<td>3/1 Cenotaph to Cocker Square Slade</td>
<td>M</td>
<td>&gt;5</td>
<td>Recurved wall with concrete apron</td>
<td></td>
</tr>
<tr>
<td>Cocker Square Slade to Gynn Square Slade</td>
<td>M</td>
<td>10</td>
<td>Vertical wall with a splash wall and concrete apron</td>
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</tr>
<tr>
<td>Gynn Square Slade to Boat Pool</td>
<td>M</td>
<td>&lt;5</td>
<td>Partially recurved wall with concrete apron and splash wall</td>
<td></td>
</tr>
<tr>
<td>Boating Pool</td>
<td>L</td>
<td>10</td>
<td>Partially recurved wall with concrete apron/parapet wall</td>
<td></td>
</tr>
<tr>
<td>Boating Pool to Duchess Dr. Slade</td>
<td>L</td>
<td>&gt;40</td>
<td>Partially recurved wall with concrete apron/parapet wall</td>
<td></td>
</tr>
<tr>
<td>Duchess Dr. Slade to Cavendish Rd.</td>
<td>M</td>
<td>10</td>
<td>Partially recurved wall with concrete apron/parapet wall</td>
<td></td>
</tr>
<tr>
<td>Cavendish Rd. to Red Bank Rd.</td>
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<td></td>
</tr>
<tr>
<td>Red Bank Rd. to Pennystone Rd.</td>
<td>L</td>
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</tr>
<tr>
<td>Pennystone Rd. to Sandhurst Ave.</td>
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</tr>
<tr>
<td>Sandhurst Av -Little Bispham Slade</td>
<td>L</td>
<td>10</td>
<td>Vertical wall with concrete apron and splash wall</td>
<td></td>
</tr>
<tr>
<td>Little Bispham Slade to Anchorsholm Park Central</td>
<td>M</td>
<td>&lt;10</td>
<td>Partially recurved wall with concrete apron/parapet wall</td>
<td></td>
</tr>
</tbody>
</table>
20.2 - Overtopping of Existing Defences

Overtopping of the existing defences has been considered and it is concluded that it is not significant in relation to breach failure. The coastal defences have been assessed within the coastal strategy as described above.

20.3 - Land Drainage Assets

Land Drainage Assets in the Borough consist of both culverted and open watercourses. There are seven pumping stations within the Borough that deal with surface water. The principle ones are situated at Marton Mere, which is owned and operated by the Council, and on Progress Way at Newhall Avenue which is operated by the Council on behalf of Lancashire County Council. They are subject to Routine and Reactive Maintenance Contracts and are monitored by 24 hour telemetry systems. Two smaller stations are at Mossom Lane and Carleton Cemetery, both owned and operated by the Council. Two further SW pumping station are on Highfield Road and Comford Road and are owned and operated by United Utilities and have a separate incorporated foul pumping facility.

22 other pumping stations owned and operated by United Utilities, varying in size and criticality, handle combined sewage which includes a considerable percentage of the Borough’s surface and ground water to be passed on via the Coastal Transfer Main to a Treatment Works at Jameson Road, Fleetwood.

The Council’s Land Drainage (open watercourse) assets will discharge to one or the other of the above installations and the schedules are set out below with further reference required to the Blackpool Area Plan. Incidental watercourses attached to many Building assets are not included i.e Schools, Offices etc.
## 20.3 - Watercourse Risk Assessment Schedules

<table>
<thead>
<tr>
<th>Location</th>
<th>Ref. No.</th>
<th>U/S</th>
<th>D/S</th>
<th>Lenght</th>
<th>Cond</th>
<th>Risk Assessment</th>
</tr>
</thead>
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<td>3331 7951</td>
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<td>3333 8251</td>
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<tr>
<td></td>
<td>H 183/02</td>
<td>3333 6156</td>
<td>3333 6151</td>
<td>33</td>
<td></td>
<td>from main system</td>
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<td>3333 5151</td>
<td>3333 5051</td>
<td>53</td>
<td>4</td>
<td>Medium - subject to surcharge</td>
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<td></td>
<td>H 182/01</td>
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<td>111</td>
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## WATERCOURSE RISK ASSESSMENT SCHEDULE - PI

<table>
<thead>
<tr>
<th>Location</th>
<th>Ref.No.</th>
<th>U/S Node Ref</th>
<th>D/S Node Ref</th>
<th>Length (m)</th>
<th>Cond</th>
<th>Risk Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherry Tree Allotments</td>
<td>PI 171/01</td>
<td>3333 5653</td>
<td>3333 5651</td>
<td>89</td>
<td>2.5</td>
<td>High - must be maintained to ensure run off from adjacent Industrial Estate and avoid flooding of amenity areas</td>
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<tr>
<td></td>
<td>PI 171/02</td>
<td>3333 5651</td>
<td>3333 5551</td>
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<td>Cherry Tree Allotments</td>
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</table>

**Mosshouse Rd (x4):**

- H 194/01 3332 0552 3332 0551 166 Low - must be maintained on piped driveways to ensure run off
- H 044/01 3339 0851 3339 1751 180 Low - must be maintained on piped driveways to ensure run off
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21.0 Recommended Policy for Development Areas – Sequential Test

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<tr>
<th>Area</th>
<th>Recommended Policy (in respect of flood risk issues only)</th>
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<tr>
<td>Central Area</td>
<td>Developments of all types should be allowed throughout most of this area which lies within Zone 1 of the EA Flood Map. All proposed development greater than 1 hectare in Flood Zone 1 should be supported by a site-specific flood risk assessment. Consideration to emergency warning and response including safe access routes should be given in all cases. As this area relies on flood and erosion protection consideration should be given to the policy within the Shoreline Management Plan as to the long term sustainability of the defence. The zoning is without consideration to the current Sea Defences Status. In terms of flood risk and the sequential test, those lands within Zone 3a remain higher risk sites within Blackpool. No development should be allowed on the limited remaining Greenfield land within Zone 3a. Any development within Zone 3a should be supported by a site-specific flood risk assessment which considers a breach scenario using climate models.</td>
</tr>
<tr>
<td>Location</td>
<td>Details</td>
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</tr>
<tr>
<td>Ryscar Way/Blackpool Technology Park</td>
<td>Developments of all types should be allowed within this area. All proposed development should be supported by a site-specific flood risk assessment. The use of Sustainable Drainage Systems should be considered, in conjunction with the capacity of the receiving sewers, to ensure that containment during exceptional rainfall is controlled.</td>
</tr>
<tr>
<td>Leys Nursery Site</td>
<td>There are no flood issues in this site therefore there should not be any restriction on flooding grounds for development of all types within this area. All proposed development should be supported by a site-specific flood risk assessment. Consideration to Sustainable Drainage Systems and surface water runoff should be given in all cases.</td>
</tr>
<tr>
<td>Warren Drive</td>
<td>The whole of the site lies within Flood Zone 3a on the Environment Agency Flood maps however the existing defences mitigate the risk from tidal inundation. A continued residual risk from a breach of the defences, and from stormwater flooding and infrastructure failure cannot be ignored which may require extraordinary measures on finished floor levels and flood proofing. Site Specific Flood Risk Assessments will be required to support all developments showing that a breach scenario has been considered using climate change allowance of the time. Consideration of alternative uses for ground floor rooms may be advisable. Maintenance and integration of watercourses and consideration of Sustainable Drainage Systems in conjunction with the capacities of receiving sewers and watercourses should be mandatory.</td>
</tr>
<tr>
<td>Cornford Road</td>
<td>There are no tidal flood issues in this site therefore there should not be any restriction on tidal flooding grounds for development of all types within this area, however the enforced maintenance and integration of peripheral watercourses is critical to avoid historical and periodic inundation of surface water. All proposed developments should be supported by a site-specific flood risk assessment. Technical Assessment of surface water runoff should be given in all cases to prevent inundation of the on-site surface water pumping station and consideration of Sustainable Drainage Systems or on site retention must be given in all cases.</td>
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<tr>
<td>Location</td>
<td>Description</td>
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<tr>
<td>Preston New Road</td>
<td>There are no flood issues in this site therefore there should not be any restriction on flooding grounds for development of all types within this area. All proposed development should be supported by a site-specific flood risk assessment. The technical consideration of Sustainable Drainage Systems and surface water runoff should be given in all cases.</td>
</tr>
<tr>
<td>Staining Site</td>
<td>There are no flood risk issues requiring restrictions on developments in this area. All proposed development should be supported by a site-specific flood risk assessment. Enforced maintenance and integration of watercourses and outfalls is mandatory. The use of sustainable drainage systems, due to the extra potential surface water run off caused by increased impermeability factors will require serious consideration in all cases.</td>
</tr>
<tr>
<td>Mythop Road</td>
<td>Developments of all types should be allowed within this area. All proposed development should be supported by a site-specific flood risk assessment. Enforced maintenance and integration of watercourses and outfalls is mandatory. Consideration should be given to Sustainable Drainage Systems in all cases, due to the potential extra surface water run off caused by increased impermeability factors. The increased flood risk implications for the sliver of land on the extreme north east edge of the site (within Zone 2) should be mitigated against – potentially most readily by the Sustainable Drainage Systems approach, and by excluding this small area on the edge of the site from any built development.</td>
</tr>
<tr>
<td>Marton Moss Sites</td>
<td>Longstanding sea defences mean there are realistically no tidal flood issues on this site therefore there should not be any restriction on tidal flooding grounds for development of all types within this area. The main flood risk in Marton Moss relates to surface water flooding from and during exceptional rainfall events and infrastructure capacity and failure. Enforced maintenance and integration of all watercourses and outfalls should be mandatory. Consideration should be given to Sustainable Drainage Systems, due to extra surface water runoff caused by increased impermeability factors, should be given in all cases. All developments should be supported by site-specific flood risk assessment which should demonstrate that appropriate mitigation measures are provided and that a breach scenario has been considered using climate change allowances of the time. To address the risk from Public Sewerage Network Operational Failure non return devices to incidental connections should be considered. There are nominated items of Main River in the area which have been incorporated in the existing infrastructure.</td>
</tr>
</tbody>
</table>
22.0 Appropriate Risk Management Measures

...  

22.1 Exception Test Requirements

In areas at risk from river or sea flooding, preference should be given to locating development in Flood Zone 1. If, following the application of the Sequential Test, and consistent with wider sustainability objectives, it is not possible for development to be located in zones of lower probability of flooding, the Exception Test may be applied which provides a method of managing flood risk while still allowing necessary development to occur.

The Exception Test is only appropriate for use when there are large areas in Flood Zones 2 and 3, where the Sequential Test alone cannot deliver acceptable sites, but where some continuing development is necessary for wider sustainability reasons. In Blackpool the sequential assessment indicates all existing identified undeveloped land sites are Flood Zone 2 locations and that there are no such Zone 2 areas where the Exception Test should be required.

The Exception Test needs to be applied to potential redevelopment sites within Zone 3a, as outlined at 18.3.

22.2 Residual Flood Risk

Residual flood risk at any of the proposed sites can be managed in a number of ways. It is recommended that all new developments be considered alongside existing developments in the area. This is necessary both in terms of preventing increased flood risk to existing properties and also to reduce the overall flood risk by taking opportunities to reduce flood risk for all. It is therefore proposed that the following hierarchy of measures is taken to reduce flood risk in the area:

- New development sites are constructed in areas of least risk, taking account of acceptability from national and regional planning policy.
- Ensure that infrastructure designed to safeguard against flooding is in good operable condition and is inspected regularly.
- Provide a strategy and funding to maintain and improve flood protection infrastructure taking into account future trends such as climate change.
- Provide site-specific mitigation measures. All proposed strategic areas of new Greenfield development must be above the 7.0 metres contour. Any new development within Zones 2 and 3 areas will require raising of development to acceptable ground levels and properties to be flood proofed against low levels of flooding.
• Focusing all development classed as “highly vulnerable” in PPS25 to Flood Zone 1 sites.

• Provide sufficient warning and information to people at risk to allow them to take appropriate action.

• Provide sufficient planned emergency response and evacuation.

To demonstrate that appropriate mitigation measures have been taken it is anticipated that modelling work should be undertaken as part of any future development proposals taking into account this study and other relevant studies. The modelling work should inform site-specific flood risk assessment which will be required for all developments. Site-specific flood risk assessments should also be considered for sites where its development has the potential to increase the flooding risk to adjacent areas.

22.3 Mitigation Measures for Specific Sites

General comment

There are now a number of design features that can be incorporated under Planning Policy Statement 25 (PPS25) and developers must assess the impact that the development may have on flooding or risk of flooding elsewhere. Any development proposals must prove that measures have been taken to deal with any potential flooding but causing minimum environmental effect. It is essential to ensure that new development will not be liable to, or to increase, the risk of flooding. As most of the watercourses in the Borough have limited spare capacity it must be shown that any new development is drained in accordance with PPS25 Guidance.

Consultation with the Sewerage Undertaker (United Utilities) for adjustments to the Drainage Area Plan and forecasted budgetary requirements is essential to provide necessary improvements to the adjacent sewerage networks and ensure sufficient capacity of the receiving sewers.

New buildings, car parking areas and highways radically increase the impermeable factor of undeveloped land and reduce its capacity to absorb surface water. New developments will only be permitted where there is adequate network drainage capacity and the developer should seek to minimise the concentration of surface water run-off by the incorporation of Sustainable Drainage Systems in accordance with the Government Flood Risk Guidance PPS25.

Some run-off can be treated at source and involves a variety of methods such as the provision of open vegetated sections (gardens, planted areas) where surface water percolates into the ground thereby reducing run-off or, where ground conditions permit, infiltration areas / soakaways may be introduced to
mimic natural drainage. Before these are considered a percolation test is required to assess the suitability of the ground and sub-strata for such installations.

By following Government guidance in PPS25 on development in flood risk areas the Council, acting as the local planning authority, are obliged to ensure that such risks are minimised. This includes measures for ensuring suitable surface water controls are incorporated to contain and control excess surface water run off. Use of Standard Practice and Recommendations contained in CIRIA manual C522 (SUDS) and Report 156 (Infiltration Drainage) should be referred to and adopted were required.

The following mitigation measures will be required to be considered for each site in order for the development to proceed:

Central Area.

Any development within this area should also take into account the policy outlined in the Shore Management Plan and demonstrate the long term sustainability of the site. Where appropriate developers should make contributions to the maintenance and required improvement of existing coastal defences. A site-specific flood risk assessment should be undertaken for each development in excess of 1 hectare.

Any development within the minority part of the central area within the Zone 3a area on the Environment Agency Flood Map should be supported by a site-specific flood risk assessment, with consideration given to the appropriate raising of threshold levels and flood proofing against low levels of flooding.

Refer to General Comment

Ryscar Way/Blackpool Technology Park

Site specific flood risk assessment
Refer to General Comments

Leys Nursery Site

Site specific flood risk assessment
Refer to General Comments

Cornford Road

Site specific flood risk assessment
Refer to General Comments

Preston New Road

Site specific flood risk assessment
Refer to General Comments

**Warren Drive**
Site specific flood risk assessment
Special consideration to extra flood risk for network failure
Refer to General Comments

**Staining Site**
Site specific flood risk assessment
The Staining Site is not currently in a flood risk area but is undeveloped.
Regular maintenance of watercourses and outfalls is essential.
Refer to General Comments

**Mythop Road**
Site Specific flood risk assessment
The Mythop Road site is not currently in a flood risk area but is undeveloped.
Regular maintenance of watercourses and outfalls is essential.
Refer to General Comments

**Marton Moss Sites**

**Site A North of Chapel Road and Between Chapel Road and Progress Way**

Site A has some areas which are at a higher risk of flooding (refer to schedule of recorded flooding events) For all developments within the site the following measures should be considered:

- Modelling should be undertaken to inform a site-specific flood risk assessment for any development. The model must demonstrate that developments would not increase the risk of flooding to existing properties.

- Any development within those parts of this site within the Zone 2 area on the Environment Agency Flood Map should be subject to consideration given to the appropriate raising of threshold levels and flood proofing against flooding.

- Refer to General Comments
**Site B - Between Bennetts Lane and Progress Way**

In common with Site A there are some areas within this site that are at a higher risk of flooding. For all developments within the site the following measures should be considered:

- Modelling should be undertaken to inform a site-specific flood risk assessment for any development. The model must demonstrate that developments would not increase the risk of flooding to existing properties.

- Any development within those parts of this site within the Zone 2 area on the Environment Agency Flood Map should be subject to consideration given to the appropriate raising of threshold levels and flood proofing against low levels of flooding.

- Refer to General Comments

**Site C - Between Progress Way and School Lane**

- Modelling should be undertaken to inform a site-specific flood risk assessment for any development. The model must demonstrate that developments would not increase the risk of flooding to existing properties.

- Any development within those parts of this site within the Zone 2 area on the Environment Agency Flood Map should be subject to consideration given to the appropriate raising of threshold levels and flood proofing against flooding.

- Refer to General Comments

**Site D – Between School Road and Division Lane**

There are no flood risk issues at this site so developments should not be restricted in this area on flood risk grounds provided the following issues are considered in the submission:

- A site-specific flood risk assessment should be carried out informed by modelling to support the findings.

- Refer to General Comments
NE10 Flood Risk
Development in areas at risk from flooding (including tidal inundation) will only be permitted where appropriate flood alleviation measures already exist or are provided by the developer. Developments will not be permitted which would increase run-off that would overload storm drains or watercourses. Sustainable drainage systems will be used in new developments unless it can be demonstrated to the Council's satisfaction that such a scheme is impractical.

8.49 It is essential to ensure that new development will not be liable to or increase the risk of flooding. Government Guidance requires local planning authorities to adopt a risk based sequential approach to proposals for development taking account of the area liable to flooding, its likelihood and extent. In accordance with PPG25 (Development and Flood Risk) applications in areas at risk of flooding should be accompanied by an appropriate flood risk assessment, which complies with Appendix F of PPG25.

8.50 The watercourses in Blackpool are incapable of accepting any increase in surface water and it therefore needs to be ensured that any new development is drained in accordance with PPG25 guidance. There have been longstanding drainage constraints on the Moss. In the north of the Borough, despite earlier improvements, there has been storm water flooding in residential areas.

8.51 All built development increases flood risk by preventing water from soaking into the ground and thus increasing run off. New developments will be permitted where there is adequate drainage capacity and should seek to minimise surface water run-off. Sustainable drainage systems (SUDS) can help to reduce the impact of built development while traditional drainage techniques using underground pipes increase the rate of run-off. SUDS involve techniques which control the rate of surface water run-off as close to its source as possible, slowing the water down and allowing it to sink into the ground. Physical elements can include basins, ponds, wetlands, permeable areas and swales (very shallow channels). Consultations will be undertaken with the Environment Agency on all relevant proposals as appropriate.

8.52 To alleviate problems of seawater flooding, the Council commenced a massive programme of sea defence and coast protection works in 1981, planned for completion in 2008, covering the length of the Promenade from Anchorsholme to Starr Gate. The next section of work covers the core resort frontage area between North and South Piers. With rising sea levels and potential climate change, it will be important to ensure the maintenance and renewal of the sea defences, with much emphasis now also on improving the appearance and environmental quality of the seafront as a mainstay of the resort's tourism offer.

8.53 Flood Zones showing those areas likely to be at risk of flooding have been prepared by the Environment Agency and are to be included in a supplementary planning document.
Blackpool SFRA

General Considerations for Development Proposals

Blackpool Council were contracted up to 31 March 2004 by United Utilities Plc (the Sewerage Undertaker), under the terms of a Sewerage Management Services Agreement (SMSA), to manage the operation of the sewerage network on their behalf. Under these arrangements the Council controlled applications for connections to the sewerage network.

The SMSA was terminated by United Utilities (effective date 31 March 2004). All matters regarding connections to public sewers are now dealt with directly by United Utilities, applying similar considerations and measures as before. Consultation between the Council and United Utilities is required as follows:

1. All proposals with drainage implications would be referred to United Utilities by the Chief Planning Officer during consultation on a planning permission.

2. Initial observations on drainage impact will be made by United Utilities. The area for development should also be included on the Drainage Area Plan (note: if DAP Plans do not exist then such plans would be produced) which will include the following notional information:
   - allowable discharge rates
   - impermeability characteristics

3. Observations/comments would be made as shown on 'Drainage Observation for Planning Applications' and will include guidance on a separate system or combined system; on-site attenuation; discharging surface water to watercourses

4. Planning Approval may then be granted with Drainage Conditions as applicable in response to any observations as above. Once approval is given, it is usual for the Developer to liaise with United Utilities direct on all matters regarding drainage and connections etc in accordance with procedures

Blackpool Council still retains certain statutory duties for undertaking the roles and responsibilities of the Highway Authority and ‘Flood and Coastal Defence Operating Authority.’ These include the following activities:

- Maintenance of Highways and Highway Drainage – which primarily includes the highway gullies (grids at the side of the road) and associated pipe work (which usually connects the highway gully to the public sewer) that removes rainwater from the highway

- Under Sect 14 of the Land Drainage Act 1991 the Council have General Flood Risk management responsibilities for watercourses, including giving advice to members of the public and taking enforcement action where appropriate
• Action during flood events (from the sea, watercourses and public networks) such as assistance to residents, delivering sandbags where needed, supporting the emergency services and assisting in the evacuation of properties

• Other services include giving advice to the public on a range of issues regarding land drainage, advice to Developers and guidance on sustainable drainage systems. This helps to control new development (especially in floodplains) to minimise future flooding risk. This involves the evaluation of flows generated by new development with their impact on watercourses and the sewerage network.

Advice to Developers on Proposed Developments

Full details of the existing and proposed means of drainage are to be submitted to the Transportation Section.

A Combined system of drainage is required in all cases, except by prior agreement with the Council and United Utilities although partially separate Surface Water systems may be permitted where there are suitable available watercourses.

On-site attenuation of surface water may be required to control the discharge flows to the watercourse system. Culverting of watercourses is not permitted except under reasonable circumstances and by agreement with the Council and the Environment Agency.

On sites utilising partially separate systems only Highway Drainage surface water and ground water is to be discharged to open watercourses or surface water culverts. The developer’s domestic system must ensure that all domestic surface water drainage is ultimately connected to a combined sewer which is suitable for adoption.

Details of the site investigation regarding contaminated land and proposals for the prevention of contaminated ground water entering surface water and watercourse systems are required, to assess any degrading impact which may result in system failure, flooding and public health. The Environment Agency Development Schedule should be referred to, particularly regarding contaminated land, in considering surface water and groundwater pollution problems. Disturbances of contaminated land can severely increase its polluting potential. The Environmental Agency can advise on the adequacy of Site Investigation in relation to water quality aspects and will recommend steps as necessary to reduce possible polluting effects.
APPENDIX B3

Blackpool SFRA: Flood Zone Maps

A  Environment Agency Flood Zone Map

B  Blackpool Council Map of Flooding Areas
Plan B1  Location Plan of Potential Development Sites (as shown Plans B2–10)

Plan B2  Central Area

Plan B3  Ryscar Way and Blackpool Technology Park

Plan B4  Leys Nursery

Plan B5  Cornford Road

Plan B6  Mythop Road

Plan B7  Warren Drive

Plan B8  West of Staining

Plan B9  Mythop Road

Plan B10 Marton Moss sites
Blackpool Strategic Flood Risk Assessment

Site Location Plan - Plan B1

Plan B2 - Central Area
Plan B3 - Ryscar Way & Blackpool Technology Park
Plan B4 - Leys Nursery
Plan B5 - Comford Road
Plan B6 - Preston New Road
Plan B7 - Warren Drive
Plan B8 - West of Staining
Plan B9 - Mythop Road
Plan B10 - Merton Moss Sites

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APPENDIX B3

Blackpool SFRA: Flood Zone Maps

A Environment Agency Flood Zone Map

B Blackpool Council Map of Flooding Areas
APPENDIX B4

Blackpool SFRA: Potential Development Sites

Plan B1  Location Plan of Potential Development Sites (as shown Plans B2–10)

Plan B2  Central Area

Plan B3  Ryscar Way and Blackpool Technology Park

Plan B4  Leys Nursery

Plan B5  Cornford Road

Plan B6  Mythop Road

Plan B7  Warren Drive

Plan B8  West of Staining

Plan B9  Mythop Road

Plan B10 Marton Moss sites
Key
1 - New Bonny Street/Former Central Station
2 - Rigby Road
3 - Central Car Park

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