Anglesey Local Flood Risk Management Strategy

Strategy Document

February 2013
Isle of Anglesey County Council
Anglesey Local Flood Risk Management Strategy

Strategy Document
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Isle of Anglesey County Council
## Issue and revision record

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# Anglesey Local Flood Risk Management Strategy

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## Glossary and Abbreviations

of words and phrases commonly used in flood and coastal erosion risk management

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<td>Act</td>
<td>A Bill approved by both the House of Commons and the House of Lords and formally agreed to by the reigning monarch (known as Royal Assent).</td>
</tr>
<tr>
<td>Aquifer</td>
<td>A layer of porous substrate that contains and transmits groundwater.</td>
</tr>
<tr>
<td>AONB</td>
<td>Area of Outstanding Natural Beauty.</td>
</tr>
<tr>
<td>AMP</td>
<td>Asset Management Plan periods – Water Industry operates in five year cycles, where by the companies set their prices for the five year cycle.</td>
</tr>
<tr>
<td>Asset Register</td>
<td>Register of structures or features which are considered to have an effect on flood risk.</td>
</tr>
<tr>
<td>Bill</td>
<td>A proposal for a new law or a proposal to change an existing law that is presented for debate before Parliament.</td>
</tr>
<tr>
<td>BGS</td>
<td>British Geological Survey.</td>
</tr>
<tr>
<td>Building Regulations</td>
<td>The UK Building Regulations are rules of a statutory nature to set standards for the design and construction of buildings. Primarily to ensure the safety and health for people in and around those buildings, but also for the purposes of energy conservation and access to and about other buildings.</td>
</tr>
<tr>
<td>Cadw</td>
<td>Cadw is the Welsh Government's historic environment service.</td>
</tr>
<tr>
<td>Catchment</td>
<td>An area that serves a river with rainwater; that is, every part of land where the rainfall drains to a single watercourse is in the same catchment.</td>
</tr>
<tr>
<td>CFMP</td>
<td>Catchment Flood Management Plan – plans that provide an overview of the flood risk across each river catchment and estuary. They recommend ways of managing those risks now and over the next 50-100 years.</td>
</tr>
<tr>
<td>Climate Change</td>
<td>The change in average conditions of the atmosphere near the Earth’s surface over a long period of time.</td>
</tr>
<tr>
<td>CCRA</td>
<td>Climate Change Risk Assessment.</td>
</tr>
<tr>
<td>Coastal Erosion</td>
<td>The wearing away of coastline, usually by wind and/or wave action.</td>
</tr>
<tr>
<td>Coastal Erosion Risk</td>
<td>Measures the significance of potential coastal erosion in terms of likelihood and impact.</td>
</tr>
<tr>
<td>Coastal Erosion Risk Management</td>
<td>Anything done for the purpose of analysing, assessing and reducing a risk of the wearing away of coastline.</td>
</tr>
<tr>
<td>Coastal Flooding</td>
<td>Occurs when coastal defences are unable to contain the normal predicted high tides that can cause flooding, possibly when a high tide combines with a storm surge (created by high winds or very low atmospheric pressure).</td>
</tr>
<tr>
<td>Coastal Squeeze</td>
<td>Where the coast is protected by engineering structures, the rising sea level results in a steepening of the intertidal profile, known as coastal squeeze.</td>
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<tr>
<td>Community Infrastructure</td>
<td>A mechanism for raising additional funding at the local level.</td>
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<td>Term</td>
<td>Meaning / Definition</td>
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<tr>
<td>Levy</td>
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<tr>
<td>Consenting</td>
<td>Process of obtaining permission to add/amend structures in/near a watercourse or flood defence structure.</td>
</tr>
<tr>
<td>CRR</td>
<td>Community Risk Register.</td>
</tr>
<tr>
<td>CCW</td>
<td>Countryside Council for Wales – is the Government’s statutory advisor on sustaining natural beauty, wildlife and the opportunity for outdoor enjoyment on Wales and its inshore waters.</td>
</tr>
<tr>
<td>Critical National Infrastructure</td>
<td>Infrastructure that supplies essential services, e.g. water, energy, communications, transport etc.</td>
</tr>
<tr>
<td>Cultural Heritage</td>
<td>Buildings, structures and landscape features that have an historic value.</td>
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<tr>
<td>Culvert</td>
<td>A covered structure under road, embankment etc, to direct the flow of water.</td>
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<tr>
<td>Defences</td>
<td>A structure that is used to reduce the probability of floodwater or coastal erosion affecting a particular area.</td>
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<td>Defra</td>
<td>Department for Environment, Food and Rural Affairs.</td>
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<tr>
<td>Deposition</td>
<td>The process whereby sediment is placed on the sea bed, shoreline, river bed or flood plain.</td>
</tr>
<tr>
<td>DG</td>
<td>Director General – is the professional head of an executive agency.</td>
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<tr>
<td>Draft Bill</td>
<td>A Bill published in draft before introduction before Parliament.</td>
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<tr>
<td>DCWW</td>
<td>Dŵr Cymru Welsh Water – supplies water, sewerage and trade effluent services in Wales.</td>
</tr>
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<td>EA / EAW</td>
<td>Environment Agency and Environment Agency Wales - Executive Non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs and a Welsh Government sponsored Public Body responsible to the Welsh Ministers.</td>
</tr>
<tr>
<td>ESF</td>
<td>Environment Social Fund.</td>
</tr>
<tr>
<td>ERDF</td>
<td>European Regional Development Fund.</td>
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<tr>
<td>EU</td>
<td>European Union.</td>
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<tr>
<td>Flood</td>
<td>Any case where land not normally covered with water becomes covered by water.</td>
</tr>
<tr>
<td>FCERM</td>
<td>Flood &amp; Coastal Erosion Risk Management.</td>
</tr>
<tr>
<td>FAG</td>
<td>Flood Alleviation Grant.</td>
</tr>
<tr>
<td>FDGiA</td>
<td>Flood Defence Grant in Aid.</td>
</tr>
<tr>
<td>FFS</td>
<td>Flood Feasibility Study.</td>
</tr>
<tr>
<td>FIR</td>
<td>Flood Investigation Report.</td>
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<tr>
<td>Flood Risk</td>
<td>Product of the probability of flooding occurring and the consequences when flooding happens.</td>
</tr>
<tr>
<td>Flood Risk Management</td>
<td>The activity of understanding the probability and consequences of flooding, and seeking to modify these factors to reduce flood risk to people, property and the environment. This should take account of other water level management and environmental requirements, and opportunities and constraints.</td>
</tr>
<tr>
<td>Flood Risk Management Measures</td>
<td>The way in which flood risks are to be managed.</td>
</tr>
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<td>Flood Risk Management Wales</td>
<td>The Regional Flood and Coastal Committee (RFCC) for Wales.</td>
</tr>
<tr>
<td>Flood Risk Regulations 2009</td>
<td>Regulations which transpose the EC Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) into domestic law and to implement its provisions.</td>
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<tr>
<td>Floodline Warnings Direct</td>
<td>Is a free service that provides flood warnings direct to you by telephone, mobile, email, SMS text message and fax.</td>
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<td>FWMA</td>
<td>Flood and Water Management Act 2010 - An Act of Parliament updating and amending legislation to address the threat of flooding and water scarcity, both of which are predicted to increase with climate change.</td>
</tr>
<tr>
<td>Fluvial Flooding</td>
<td>Flooding from rivers including ordinary watercourses and main rivers.</td>
</tr>
<tr>
<td>FCW</td>
<td>Forestry Commission Wales – Government Body Responsible for managing Britain’s public forests.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>Water held underground in the soil or in pores and crevices in rock.</td>
</tr>
<tr>
<td>Groundwater Flooding</td>
<td>Occurs when water levels in the ground rise above the natural surface. Low lying areas underlain by permeable strata are particularly susceptible.</td>
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<tr>
<td>IoACC</td>
<td>Isle of Anglesey County Council.</td>
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<tr>
<td>LDP</td>
<td>Local Development Plan.</td>
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<tr>
<td>LDC</td>
<td>Land Drainage Consent.</td>
</tr>
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<td>Local Flood Risk</td>
<td>Defined within the Flood and Water Management Act 2010 as including surface runoff, groundwater and ordinary watercourses.</td>
</tr>
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<td>LFRMS</td>
<td>Local Flood Risk Management Strategy - Required in relation to Wales by Section 10 of the Flood and Water Management Act 2010 Local; Flood Risk Strategies are to be prepared by Lead Local Flood Authorities and must set out how they will manage local flood risks within their areas.</td>
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<tr>
<td>LLFA</td>
<td>Lead Local Flood Authority - the County Council or the County Borough Council for the area (Local Authority).</td>
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<td>LRF</td>
<td>Local Resilience Forum - A group required under the Civil Contingencies Act, 2004 who are responsible for the coordination of emergency planning in local areas.</td>
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<tr>
<td>Main River</td>
<td>A watercourse shown as such on the Main River Map, and for which the Environment Agency has responsibilities and powers.</td>
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<td>Managed Realignment</td>
<td>A coastal defence technique which aims to achieve sustainable flood defence by recreating eroded salt marsh and mudflat habitats.</td>
</tr>
<tr>
<td>NWRF</td>
<td>North Wales Resilience Forum – made up of strategic level managers of each of the Category 1 responders (Local Authority, Emergency Services, and Local Health Boards) to ensure that there is an appropriate level of preparedness to enable an effective multi-agency response to an emergency.</td>
</tr>
<tr>
<td>Otwat</td>
<td>Water Services Regulation Authority – the body responsible for economic regulation of the privatised water and sewerage industry in England and Wales.</td>
</tr>
<tr>
<td>Ordinary Watercourse</td>
<td>All watercourses that are not designated Main River, and which are the responsibility of riparian landowners.</td>
</tr>
<tr>
<td>PDZ</td>
<td>Policy Development Zone.</td>
</tr>
<tr>
<td>PFRA</td>
<td>Preliminary Flood Risk Assessment.</td>
</tr>
<tr>
<td>Recovery</td>
<td>The process of rebuilding, restoring and rehabilitating the community following an emergency.</td>
</tr>
<tr>
<td>RWA</td>
<td>Regional Water Authorities.</td>
</tr>
<tr>
<td>RFCC</td>
<td>Regional Flood and Coastal Committee - An Environment Agency committee, responsible for consenting medium and long term plans and operational plans to the Agency’s Board and Head Office. Monitors and reports on progress. In Wales there is only one RFCC and this is the FRMW (Flood Risk Management Wales) Group.</td>
</tr>
<tr>
<td>Reservoir</td>
<td>An artificial lake where water is collected and stored until needed. Reservoirs can be used for irrigation, recreation, providing water for municipal needs, hydroelectric power or controlling water flow.</td>
</tr>
<tr>
<td>Residual risk</td>
<td>The risk that remains after risk control measures have been put in place.</td>
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<tr>
<td>Resilience</td>
<td>The ability of the community, services, area or infrastructure to avoid being flooded, lost to erosion or to withstand the consequences of flooding or erosion taking place.</td>
</tr>
<tr>
<td>RSG</td>
<td>Revenue Support Grant.</td>
</tr>
<tr>
<td>Risk</td>
<td>Measures the significance of a potential event in terms of likelihood and impact. In the context of the Civil Contingencies Act 2004, the events in question are emergencies.</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>A structured and auditable process of identifying potential significant events, assessing their likelihood and impacts and then combining these to provide an overall assessment of risk to inform further decisions and actions.</td>
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<td>Meaning / Definition</td>
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<tr>
<td>Risk Management</td>
<td>Anything done for the purpose of analysing, assessing and reducing a risk.</td>
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<tr>
<td>RMA</td>
<td>Risk Management Authority - A Welsh risk management authority is defined in Section 6 of the Flood and Water Management Act 2010 as the Environment Agency, a Lead Local Flood Authority, a district council for an area for which there is no unitary authority, an IDB for an internal drainage district that is wholly or mainly in Wales and a water company that exercises functions in relation to an area in Wales.</td>
</tr>
<tr>
<td>Risk Management Schemes</td>
<td>A range of actions to reduce flood frequency and/or the consequences of flooding to acceptable or agreed levels.</td>
</tr>
<tr>
<td>River flooding</td>
<td>Occurs when water levels in a channel overwhelms the capacity of the channel.</td>
</tr>
<tr>
<td>Roll Back</td>
<td>As natural defences fail the coast will ‘roll back’ naturally, creating an opportunity for the expansion of intertidal and coastal habitats.</td>
</tr>
<tr>
<td>Royal Assent</td>
<td>Method by which the constitutional monarch formally approves an act of parliament.</td>
</tr>
<tr>
<td>Sewer</td>
<td>An artificial conduit, usually underground, for carrying off sewage (foul sewer) or rainwater (storm or surface water sewer) or both (combined sewer).</td>
</tr>
<tr>
<td>SMP</td>
<td>Shoreline Management Plans - A large-scale assessment of the risks associated with coastal processes and helps reduce these risks to people and the developed, historic and natural environments.</td>
</tr>
<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment. An SEA is a system of incorporating environmental considerations into policies, plans, programmes and strategies.</td>
</tr>
<tr>
<td>SFRA</td>
<td>Strategic Flood Risk Assessment.</td>
</tr>
<tr>
<td>SuDS</td>
<td>Sustainable Drainage Systems - Approach to surface water management which helps to deal with excesses of water by mimicking natural drainage processes and patterns.</td>
</tr>
<tr>
<td>Surface Water Flooding</td>
<td>In the urban context, usually means that surface water runoff rates exceed the capacity of drainage systems to remove it. In the rural context, it is where surface water runoff floods something or someone.</td>
</tr>
<tr>
<td>Surface Water Runoff</td>
<td>This occurs when the rate of rainfall exceeds the rate that water can infiltrate the round or soil and flows over ground.</td>
</tr>
<tr>
<td>SWMP</td>
<td>Surface Water Management Plan.</td>
</tr>
<tr>
<td>SAB</td>
<td>SuDS Approval Body.</td>
</tr>
<tr>
<td>TAN 14: Coastal Planning</td>
<td>Technical Advice Note 14 supports Planning Policy Wales and covers all aspects of planning for new development and the coastal zone.</td>
</tr>
<tr>
<td>TAN 15: Development &amp; Flood Risk</td>
<td>Technical Advice Note 15 supports Planning Policy Wales and makes it clear how local authorities should make decisions about different types of development on flood plains, providing clear tests for justification and acceptability of flooding consequences, and enabling the consideration of risks over the lifetime of the new development.</td>
</tr>
<tr>
<td>Term</td>
<td>Meaning / Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>UKCP09</td>
<td>United Kingdom Climate Projections – is the working name for the UK Climate Projections, which forecasts the potential impacts of future climate change based on sound science.</td>
</tr>
<tr>
<td>UK Highways A55 Ltd</td>
<td>Responsible for the maintenance of the trunk roads in Anglesey.</td>
</tr>
<tr>
<td>Wales Flood Group</td>
<td>A sub group of a Wales Resilience Forum.</td>
</tr>
<tr>
<td>Watercourse</td>
<td>A channel natural or otherwise along which water flows.</td>
</tr>
<tr>
<td>Water Company</td>
<td>A company which holds an appointment under Chapter 1 of Part 2 of the Water industry Act 1991 or a licence under Chapter 1A of Part 2 of that Act.</td>
</tr>
<tr>
<td>WG</td>
<td>Welsh Government.</td>
</tr>
<tr>
<td>WLGA</td>
<td>Welsh Local Government Association - Represents the interests of Local Authorities in Wales. The three fire and rescue authorities, four police authorities and three national park authorities are associate members.</td>
</tr>
<tr>
<td>Welsh Risk Management Authorities</td>
<td>Risk Management Authorities as defined in Section 27 of the Flood and Water Management Act 2010.</td>
</tr>
</tbody>
</table>
Anglesey Local Flood Risk Management Strategy

Executive Summary

Introduction

This Local Flood Risk Management Strategy (LFRMS) begins a new chapter for flood and coastal erosion risk management in Anglesey which will work towards understanding and managing flood risk within the County. It highlights the steps that are to be taken to improve knowledge of flood risk on the island, to work better with organisations and the public towards reducing those risks whilst aiming to balance the need of communities, the economy and the environment. This Strategy will highlight the steps that are to be taken to ensure this happens.

Isle of Anglesey County Council (IoACC), as a Lead Local Flood Authority (LLFA) will principally look to tackle ‘local flood risk’, i.e. flooding from surface water, groundwater and ordinary watercourses such as ditches and streams. Until now there has been little co-ordinated work to address these forms of flood risk; however this Strategy will look to address this.

The Strategy starts with information on the legislation that underpins flood and coastal erosion risk management. It then pulls together all available information on flooding in Anglesey so that it is more easily accessible for those trying to understand more about flood risk in the county. Subsequently, it goes on to identify the authorities and organisations involved and what part each will play in helping reduce the risk of flooding and what householders and businesses need to do to protect their properties.

The next section will describe the strategic objectives for managing flood risk and the measures that might be implemented to achieve them. This will be supplemented by annual action plans in order to give a more detailed overview of what IoACC want to achieve that year and how it will be undertaken. These will be reviewed as more information has been collated about where the greatest risk is and what funding can be attained.

What should be included within the LFRMS

Under the terms of the Flood and Water Management Act 2010 (FWMA) this Local Strategy is required to identify:

- The Risk Management Authorities in the Authority’s area;
- The flood and coastal erosion risk management functions that may be exercised by those Authorities in relation to the area;
- The objectives for managing local flood risk;
- The measures proposed to achieve those objectives;
- How and when the measures are expected to be implemented;
- The costs and benefits of those measures, and how they are to be paid for;
- The assessment of local flood risk for the purpose of the Strategy;
- How and when the Strategy is to be reviewed; and
How the Strategy contributes to the achievement of wider environmental objectives.

The Risk Management Authorities in Anglesey

Managing local flood risk is the responsibility of IoACC as an LLFA. The Local Strategy must set out who the other Risk Management Authorities are in the area that have legal responsibilities for the management of flood risk, these have been identified as:

- **Environment Agency Wales** (EAW) is responsible for managing flood risk from main rivers and the sea, and also has a strategic overview role over all flood and coastal erosion risk management and for regulating the safety of reservoirs. EAW also has a key role in providing flood warnings to the public.

- **Isle of Anglesey County Council** as a lead local flood authority, is responsible for taking the lead in managing flood risk from all local sources, including surface water, groundwater and ordinary watercourses.

- **Dŵr Cymru – Welsh Water** (DCWW) is the regional water and sewage treatment company serving the Anglesey area. DCWW is responsible for flood risk from sewers and burst pipes.

- **Isle of Anglesey County Council as a Highways Authority** is responsible for managing flood risk on roads and highways within the area. Local Authorities in Wales act as highway authorities in respect of local roads.

- **North and Mid-Wales Trunk Road Agent** (NMWTRA) is responsible for the maintenance and improvement of trunk roads across Anglesey on behalf of the Welsh Government. NWTRA must ensure that:
  - Road projects do not increase flood risk;
  - Road discharges do not pollute receiving waterbodies.

IoACC as Lead Local Flood Authority

The Flood and Water Management Act 2010 places a number of statutory duties on the IoACC in their new role as LLFA including:

- A duty to develop, maintain, apply, and monitor a Strategy for local flood risk management;

- A duty to ensure the Strategy is consistent with the national flood and coastal erosion risk management Strategy for Wales;

- A duty to co-operate with other authorities, including sharing data;

- A duty to investigate all flooding within its area, insofar as a LLFA consider it necessary or appropriate;

- A duty to maintain a register of structures and features likely to affect flood risk;

- A duty to contribute to sustainable development.
In addition to these each LLFA has a number of what are called permissive powers. These are powers that allow them to do something, but do not compel them to and include:

- Powers to request a person for any information relating to flood or coastal erosion risk management responsibilities;
- Powers to designate structures and features relating to flood risk, other than from “Main River;
- The expansion of powers to undertake works to include broader risk management actions; and

IoACC will also be required to take on two other roles:

- SuDS Approval Body (SAB) to approve, adopt and maintain SuDS on new development sites which serve more than one property; and
- Taking responsibility for consenting works on ordinary watercourses.
Objectives of the Strategy

Ten Objectives for Isle of Anglesey County Council

1. To improve the understanding of local flood (surface water, groundwater and ordinary watercourses) and coastal risks;

2. Increasing individual and community awareness and preparedness for flood and coastal erosion events and the impacts of climate change on flood risk;

3. To work together (both FRMA, stakeholders and public) to reduce flood and coastal risks, sharing data and resources to the greatest benefit;

4. To reduce the impact and consequences for individuals, communities, businesses and the environment from flooding and coastal erosion;

5. To ensure that planning decisions are properly informed by flooding issues and the impact future planning may have on flood risk management and long term developments;

6. Take a sustainable approach to flood risk management balancing economic, environmental and social benefits;

7. Increase approaches that work sympathetically with natural processes;

8. Ensure the development of skills required to implement effective and innovative flood risk management measures;

9. Encourage maintenance of privately owned flood defences and ordinary watercourses, and minimise unnecessary constrictions in watercourses; and

10. Work together with other Flood Risk Authorities to reduce the loading of combined sewers.
**Review of the Strategy**

The Strategy is a “living document” which will develop as new information, expertise and resources influence the delivery of the measures outlined in the Strategy. There will also be substantial changes in the next few years, with changes to the planning system and the requirements for sustainable drainage; and in the provision of flood insurance. IoACC will take account of these changes and consider the implications in respect to the Strategy and make annual on-going adjustments as necessary.

It is proposed that a formal review of the local Strategy should take place in 2017 following the review of the National Strategy in 2016, and to coincide with the review of the Preliminary Flood Risk Assessment (PFRA) as required by the Flood Risk Regulations (FFR). The Strategy should then continue to be reviewed every six years in conjunction with the review of the PFRA, unless circumstances dictate a more frequent review.
1. Introduction

The increase in occurrence and severity of flooding in recent years including that of summer 2007 sparked a government-commissioned investigation into the flooding, known as the Pitt Review\(^1\). It summarised the failings of historic flood management, resulting in an extensive set of recommendations which were transposed into the Flood and Water Management Act 2010\(^2\) (FWMA). The FWMA created a responsibility for County and Unitary Councils to act as Lead Local Flood Authorities (LLFA’s) which meant they were required to take leadership for the coordination and management of local flood risk.

Isle of Anglesey County Council (IoACC) has been designated as a LLFA in Wales, and is required under Section 10 of the FWMA to develop, maintain, apply and monitor a Local Flood Risk Management Strategy (LFRMS) in its area. The purpose of the LFRMS is to address potential flood risk arising from local sources within the boundaries of the Local Authority area. Local flood risk is defined as any flood risk from surface runoff, groundwater and ordinary watercourses. An ordinary watercourse is defined (in the Water Resources Act 1991) as any watercourse, including lakes and ponds that is not classified as a main river.

It is likely that changes in our climate, such as increased severity of storms and wetter winters, will increase the risk and impact of flooding. Flooding already poses a serious risk to the people, economy and environment of Anglesey and climate change is expected to increase this risk, as well as the rate of coastal erosion, in the coming decades\(^3\). Communities at risk of flooding and coastal erosion can expect to see those risks realised more frequently and the magnitude of the impacts to be increased. It will not be possible simply to continue to build more and bigger drainage systems and defences in response to this increased risk; the response has to be rooted in the principles of risk management, providing a holistic approach to identifying flooding issues, and managing the risks, and their consequences.

This flood risk Strategy begins a new chapter of Flood and Coastal Erosion Risk Management (FCERM) for Anglesey. It highlights the steps that are to be taken to improve knowledge of flood risk on the island, to work better with organisations and the public towards reducing those risks whilst aiming to balance the need of communities, the economy and the environment.

The Strategy document starts with information on the legislation that underpins Flood and Coastal Erosion Risk Management activities, the nature of flood risks in Anglesey and what further information is needed to help build a better picture of local flood risks. It then identifies the authorities and organisations involved and what part each will play in helping reduce the risk of flooding. The next section will describe the strategic objectives for managing flood risk and the measures that might be implemented to achieve them.

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1. The Pitt Review; Learning Lessons from the 2007 Floods - Full Report
This will be supplemented by annual action plans in order to give a more detailed overview of what IoACC want to achieve that year and how it will be undertaken.

In the first action plan we outline a range of options, from small-scale local activities to long-term major plans and where possible we have identified who will be involved, timescales and how they may be funded.

Considering the current pressures on public funding, the money available for Flood and Coastal Erosion Risk Management is unlikely ever to be adequate to deal with all existing flood risks and the increasing future risk brought about by further development and a changing climate. As such flood risk management will need to be supplemented by everyone working together and by those at risk from flooding taking responsibility to protect and help themselves.

1.2 Strategic Environmental Assessment

A Strategic Environmental Assessment (SEA) is being undertaken to ensure that any significant environmental effects arising from this Strategy are identified, assessed, mitigated, communicated to decision-makers, monitored and that opportunities for public involvement were provided.

SEA is a generic tool that was introduced by the European Union Directive 2001/42/EC. The objective of the Strategic Environmental Assessment Directive is to “to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development (Article 1)”.

This requires national, regional and local strategic environmental assessment on certain plans and strategies that they promote, such as this Strategy. Monitoring of the significant environmental effects of implementing the Strategy will be undertaken to comply with Strategic Environmental Assessment Directive - Article 10.1, to ensure that any unforeseen adverse effects of the Local Strategy are recognised and dealt with.

The SEA for this Strategy has been carried out as the document has developed. The SEA has been undertaken in line with Government Guidance. Statutory Consultees (Environment Agency Wales, Countryside Council for Wales and Cadw) have been consulted with and the public have had an opportunity to comment, and these comments have been incorporated into the final Environmental Report.

1.3 Habitats Regulations Assessments

Under the European Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora (also known as the ‘Habitats Directive’), and the resulting Conservation of Habitats and Species (Amendment) Regulations 2012, a Habitat Regulations Assessment (HRA) is required where a plan may give rise to potential significant effects on European designated sites, known as Natura 2000 sites.

Natura 2000 sites consist of Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites and also include potential SPA (pSPA) and candidate SAC (cSAC). Within and surrounding the county there are a number of SPA’s and SAC’s, and therefore a HRA Stage 1 ‘Test of Likely Significant’ (Screening) has been undertaken to determine whether there are likely to be any significant effects on Natura 2000 sites from the LFRMS. A Screening Report was produced and will be consulted upon by CCW. The screening has concluded that a Stage 2 ‘Appropriate Assessment’ will not be required.
2. Guiding Principles

The following are the guiding principles which Flood and Coastal Erosion Risk Management in Anglesey will be based on:

- Floods are natural events and will continue to occur, regardless of any efforts to prevent them. The danger from flooding will never be eliminated and therefore it is important to focus as much on reducing the disruption that flooding causes as on measures to prevent it;

- There are opportunities to derive significant benefits in the wider context of sustainability, environmental and social improvement in the Flood and Coastal Erosion Risk Management function;

- The public and private costs created from flood damage can be reduced in the long term by effective flood risk management;

- The decisions on where local resources are focused should be evidence-based and made against clear justifiable criteria;

- The level of knowledge about flood risk across all stakeholders needs to be improved;

- To ensure the long term success of flood risk management across Anglesey, all relevant organisations and public funded bodies will have to work collectively to manage the risks of flooding;

- No organisation is able to ensure that all households and businesses are safe from flooding. Householders and business holders have responsibility for protecting their assets, but the relevant public organisation has a duty to inform property owners of their risk and advise what steps they can take to make their property more resilient;

- Encourage an increase in total investment in flood risk management beyond levels provided by the Welsh Government (WG) alone;

- New developments should look not only to ensure that there is no increase in flood risk but where practical, it should reduce the flood risk currently there;

- The cumulative impact of small developments on flood risk shall be assessed with a similar significance as major developments, to ensure the threat of flood risk doesn’t increase; and

- Climate change and how it could affect future flood and erosion risk needs greater understanding and all options should be appraised to enable adaptation to changing risk.
3. Legislative Context

3.1 History of Flood Risk Management

The responsibility for flood risk management has changed considerably over the past 30 years. Prior to 1989, the regulation of national environmental issues (including flood risk management, drainage and water quality) was carried out by ten Regional Water Authorities (RWAs). The Welsh National Water Development Authority (which came into existence by virtue of the Water Act 1973) covered the area which is now IoACC. In 1989 the National Rivers Authority (NRA) was set up, a national body that took over the roles and responsibilities for flood risk management, drainage and water quality in England and Wales. The Water Act 1989 was passed by Government which privatised the Water Supply and Sewerage functions of the Water Authorities with Dŵr Cymru Welsh Water (DCWW) becoming a PLC (Since 2001 DCWW has been owned by Glas Cymru, a company limited by guarantee).

In December 1991, a number of pieces of legislation were enacted which aimed to consolidate existing water legislation. Most relevant in terms of flood risk management were the Land Drainage Act, which outlined the duties and powers to manage land drainage for a number of bodies including internal drainage boards and Local Authorities, and the Water Resources Act, which outlined the roles and responsibilities of the NRA. The Statutory Water Companies Act and the Water (Consequential Provisions) Act were also enacted at the same time.

The Environment Agency⁴ (EA) was established by the Environment Act in 1995. The EA came into existence on 1st April 1996 and took over the roles and responsibilities of the NRA and also the responsibility for issuing flood warnings, a role previously held by the police. The management and operation of the Environment Agency is divided into a number of regions across the country; the island of Anglesey falls within the Environment Agency Wales region.

Within England and Wales, recent flood risk management policy changes were accelerated by major flood events in 1998 and 2000, which led to the release of Planning Policy Guidance 25 (PPG25): Development and Flood Risk in England during 2001. Technical Advice Note 15 (TAN15), the Welsh equivalent of PPG25 was released in 2004 and aims to direct development away from areas of high flood risk with justification and assessment of consequences required if this cannot be achieved. TAN15 also encourages Sustainable Drainage Systems (SuDS) to be implemented for any development where they will be effective.

In England Planning Policy Statement 25 (PPS25) superseded PPG25 in 2006 and reinforced the requirement for sustainable surface water management in new developments. This has now been replaced by the National Planning Policy Framework (NPPF) which looks to rationalise the amount of planning legislation and bringing it all together in one coherent document. The Wales Office⁵ has welcomed the changes to the English planning guidelines and encourages the Welsh Government to seek to adopt these measures.

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⁴ An Executive Non-departmental Public Body responsible to the Secretary for Environment, Food and Rural Affairs and in Wales a Welsh Government Sponsored Body responsible to the Minister for Environment and Sustainable Development

⁵ The Wales Office supports the Secretary of State for Wales
3.2 **The Flood and Water Management Act 2010**

Following Royal assent in April 2010 The Flood & Water Management Bill became an Act of Parliament. The Act reinforces the need to manage flooding in a holistic and sustainable manner and places a number of new roles and responsibilities on councils such as Anglesey, which is designated as a Local Lead Flood Authority under the FWMA extending their previous responsibilities for flood risk management. The preparation of this LFRMS is just one of the duties placed upon IoACC under this piece of legislation.

There are two key drivers behind the new legislation; one being the review into the summer 2007 floods by Sir Michael Pitt, most often referred to as the Pitt Review. The other key driver behind the Act is the EU Floods Directive which has been transposed into UK law by the Flood Risk Regulations, 2009. Both of which are summarised in the following sections:

3.3 **The Pitt Review**

Sir Michael Pitt carried out an independent review of national Flood and Coastal Erosion Risk Management practices after the widespread and catastrophic floods during the summer of 2007, in which over 55,000 households were affected and damages exceeded £4 billion. The Pitt Review was published in June 2008 and called for urgent and fundamental changes to the way flood risk was being managed. The report contained 92 recommendations for the Government, Local Authorities, Local Resilience Forums and other stakeholders which were based around the concept of Local Authorities playing a major role in the management of local flood risk, through coordinating with all relevant authorities. Many of the recommendations contained in the Pitt Review have been enacted through the Flood and Water Management Act.

3.4 **The Flood Risk Regulations 2009**

The Flood Risk Regulations (FRR) came into force in December 2009 and transpose the EU Floods Directive into law for England and Wales. The Flood Risk Regulations require three main pieces of work:

- **Preliminary Flood Risk Assessment (PFRA)** – This involves collecting information on past and future floods from surface water, groundwater and ordinary watercourses, assembling the information into a PFRA report and identifying Indicative Flood Risk Areas. No Indicative ‘Flood Risk Areas’ were identified on Anglesey. The PFRA for Anglesey has been completed and can be found on the Environment Agency website.

- **Flood Hazard and Flood Risk Maps** – Any authorities identifying an Indicative Flood Risk Area are required to produce hazard and risk maps for those areas by 22<sup>nd</sup> December 2013.

- **Flood Risk Management Plans** – The final stage is for authorities with an Indicative Flood Risk Area to produce a Flood Risk Management Plan for those areas by 22<sup>nd</sup> December 2015.

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<sup>6</sup> The Costs of the summer 2007 floods in England – Environment Agency (Project: SC070039/R1) Published January 2010

<sup>7</sup> Flood Risk Area is defined in the report as an affected population greater than 5,000 people at risk, as defined in the WAG/Defra guidance document ‘Selecting and Reviewing Flood Risk Areas for local sources of flooding – Guidance for Lead Local Flood Authorities’.
The PFRA did not identify any ‘Flood Risk Areas’ within Anglesey. Flood Risk Areas termed in the PFRA have been defined by Welsh Government guidance as an affected population greater than 5,000 people at risk. No clusters were identified by Environment Agency Wales (EAW) within Anglesey County, and as such IoACC are not required under the FRR to undertake the flood hazard and flood risk maps and flood risk management plans.

These pieces of work are to be reviewed on a six yearly cycle so IoACC will revise the PFRA by 2017. Should this review identify a Flood Risk Area, further flood hazard and flood risk maps and flood risk management plans will need to be completed during this cycle. It is proposed that a review of the local Strategy should take place in 2017 following the review of the National Strategy in 2016, and to coincide with the review of the PFRA.

3.5 The National Strategy for Flood and Coastal Erosion Risk Management

The Flood and Water Management Act 2010 requires the Welsh Government (WG) to develop, maintain, apply and monitor a National Strategy for flood and coastal erosion risk management in Wales. It can be found at the following location:


The National Strategy sets four overarching objectives for the management of flood and coastal erosion risk in Wales, which are as follows:

- Reducing the consequences for individuals, communities, businesses and the environment from flooding and coastal erosion;
- Raising awareness of and engaging people in the response to flood and coastal erosion risk;
- Providing an effective and sustained response to flood and coastal erosion events; and
- Prioritising investment in the most at risk communities.

Implementing these objectives will be the responsibility of everyone involved in or affected by flood and coastal erosion risk management, from the WG to the Welsh Risk Management Authorities and the people of Wales themselves.

The FWMA states that Local Strategies must be consistent with the National Strategy for Wales. Being consistent ensures that the strategic aims and objectives in the National Strategy are translated into meaningful objectives for their own particular area.

The WG have a wide range of measures which they propose will meet their objectives. The following measures have been assigned to LLFA to lead delivery on:

- Development of Local Flood Risk Management Strategies;
- Implementation of statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations 2009;
• Approval and adoption of SuDS drainage systems by the SuDS Approving and Adopting Body;
• Development of a register of natural and manmade structures or features likely to have an effect on flood risk;
• Establishment of a programme of regular and appropriate maintenance for flood and coastal erosion risk management assets (for assets owned by the LLFA);
• Designation of natural and manmade structures or features likely to have an effect on flood or coastal erosion risk over the life of the Strategy;
• Programme of community based awareness and engagement activities, utilising the Flood Risk Management Community Engagement Toolkit (in partnership with the Environment Agency);
• Identification of at risk groups within communities, including vulnerable individuals;
• Development of procedures for the effective clearance of debris (following a flood event);
• Development of repair schedules including provision for the installation of resilient measures; and
• Investigations into the causes of flooding to be undertaken where necessary within one month.

There are additional measures for local authorities in their capacity as local planning authority and as Category 1 responder under the Civil Contingencies Act 2004.

3.6 Other Legislation

Flood Risk Management is affected by a range of other legislation. Which are considered to include (but limited to) the following:

• The Climate Change Act 2008;
• The Civil Contingencies Act 2004;
• The Strategic Environmental Assessment (SEA) Directive 2001;
• The Conservation of Habitat and Species Regulations 2012 (amended);
• The Land Drainage Act 1991;
• The Water Framework Directive 2007;
• Wildlife and Countryside Act 1981;
• Countryside and Rights of Way Act 2000;
• Coast Protection Act 1949;
• Natural Environment and Rural Communities Act 2006;
- Public Health Act 1936; and
4. Flood Risk in Anglesey

4.1 Introduction

The European Union (EU) Floods Directive defines a flood as a covering by water of land not normally covered by water. It can occur from a number of sources, including rivers, the sea, small local watercourses, below ground drainage systems and direct surface water run-off. Understanding both the sources of and reasons for flooding, ensures that IoACC can take steps to manage and reduce the risks of flooding. Flood risk is the product of the likelihood or chance of flooding, multiplied by the consequences or impacts of flooding.

The likelihood (or chance) of flooding occurring in any one year can be expressed as a probability or an annual chance. For example:

- A 1% annual probability of flooding; or
- A 1 in 100 chance of flooding at a location in any year.

The consequences (or impacts) of flooding can have serious effects not only on people and property, but also on essential services, infrastructure and the environment.

4.2 Local Flood Risk

Anglesey is exposed to the combined potential risk from river, tidal, coastal flooding and reservoir inundation. Urban drainage and surface water problems have also contributed to the counties history of flooding.

The administration area of the Isle of Anglesey County Council is the 9th largest within Wales and covers an area of approximately 714 km². The county falls into the Western Wales River Basin District.

IoACC has just over 200 km of coastline, 7.9 km of which is artificially protected; this comprises approximately 1/20 of the artificially protected coastline in Wales. IoACC serves a total resident population of 68,600 (2010), approximately 40% of whom are settled along the coast in the larger towns of Holyhead, Menai Bridge, Beaumaris, Benllech and Amlwch. Away from the coast, the area is predominantly rural, with small villages and a few larger settlements adjacent to rivers (Llangefni).

Most of the flooding on the island is attributed to surface water flooding, causing overload of the existing sewer systems which is particularly prevalent in Beaumaris, Holyhead, Dwyran and Llangefni. Llangefni and Dwyran are located on rivers and the flood risks here are from surface water run-off, sewer systems and also tidally influenced river flooding.

A few examples of historical flooding have been given, however, details on specific locations can be found in the PFRA and a link provided in Chapter 6.

4.3 Types of Flooding

Flooding can be caused from a wide variety of sources and interactions between those sources. The FWMA defines ‘local flood risk’ as being a flood risk from:
Surface water runoff;

Groundwater; and

Ordinary water courses.

These sources are defined below. It should be noted that in many cases these sources can be interrelated and flooding can be caused by a combination of sources including those not considered local sources such as main rivers or the sea.

Although this Strategy is directed at managing risk from flooding from local sources, this document takes into account the aims and objectives identified in the National Strategy for Flood and Coastal Erosion Risk Management in Wales, published by the Welsh Government in November 2011. As such, and for completeness, all types of flooding that may occur in the county and that are covered by both strategies (local and national) have been described in the following sections.

4.3.1 Surface Water Flooding (pluvial)

Surface water flooding also known as runoff or pluvial flooding is caused by water flowing overland following periods of prolonged or intense rainfall, leading to flows or ponding of water. Surface water flooding can happen anywhere with very little warning and can disappear with a similar speed. Areas which have been historically subject to this type of flooding are likely to experience a higher probability of repeat flood events in the future according to climate change projections.

Simplistically surface water flooding is caused by the inability of rainwater to be absorbed into the ground quicker than it falls as precipitation, causing a build up and flows across ground. Precipitation that has entered a watercourse, public sewer, or drainage system and overflows from there onto the surface is not within the definition of surface runoff.

Surface water flooding is complex in nature and can be exacerbated by a number of factors. These include; poor infiltration rates where water is unable to (or slow to) discharge to ground including areas of impervious natural materials (for example clay soils, non-porous rocks) or man-made materials (hard-standing, roofs); poorly maintained structures (blocked or silted gullies and pipe work) or under designed local drainage capacity allowing for insufficient attenuation of surface water runoff following periods of heavy rainfall; and obstructions in watercourses leading to overtopping and flows over land.

Significant work has been undertaken by the LLFA team within IoACC to identify the risk and the probability of flooding from surface water under Section 10 of the FRR. As part of their responsibilities the LLFA produced a PFRA in 2011 to identify the areas within the county that are at risk from flooding. Figure 4.1 in the next section provides the locations of historical Surface Water Flooding in Anglesey.
4.3.2 Groundwater Flooding

Groundwater is the term used to describe water that is stored underground in permeable rocks which are known as aquifers. The aquifers are fed through the process of precipitation which percolates through the ground and includes all of the water that is not lost to surface water runoff and evapo-transpiration. Groundwater forms the foundation of the base-flows of rivers and stream which are topped up by surface run-off. Groundwater flooding occurs when the water held underground rises above these levels. It is important to note that the term groundwater does not include any water that is carried in buried pipes or held underground in containers.

Predicting groundwater flooding is often complex as groundwater levels are heavily influenced by the underlying geology and the topography and geology of the surrounding catchment areas. Groundwater flooding can occur following extended periods of heavy rain (either local or within the aquifer catchment) and can occur many hours or even days after the precipitation has finished and can remain in-situ for long periods of time. Other factors that can influence groundwater levels can include reduced abstraction rates, or changes to underground flows.

In Anglesey flooding attributed directly to groundwater is extremely difficult to apportion as groundwater flooding usually occurs in combination with pluvial and fluvial flooding. As groundwater flooding occurs in low lying areas, basements of residential housing are usually impacted by this type of flooding.

Figure 4.1: Risk of surface water flooding in Anglesey based on historical events taken from PFRA
Residents may not even be aware that their property has been flooded or they are aware that flooding has occurred previously (and do not store valuable goods in basements) and do not report incidents to the Council as limited damage to personal belongings has occurred. As such historical records relating to groundwater flooding within Anglesey are limited.

4.3.3 Fluvial Flooding

Fluvial flooding occurs when a river or ordinary watercourse reaches its capacity and overflows bursting its banks. This type of flooding can be influenced by a large number of factors, but usually occurs following prolonged and heavy rainfall within the rivers catchment area.

Under the Water Resources Act 1991, main rivers are defined on the main river map (see Figure 4.2 below) and the Environment Agency Wales retains their powers relating to them. Fluvial flooding from main rivers is outside the scope of this Strategy, as it only deals with flooding from ordinary watercourses. However, as the main rivers have an impact on ordinary watercourses the Strategy does take the flooding issues from main rivers into account where appropriate.

Figure 4.2: The Environment Agency Main River Map – Main rivers and risk of flooding from rivers and sea

Overseeing the management of local flood risk from ordinary watercourses that are not designated Main River, are the responsibility of Local Authorities. In terms of ordinary watercourses the LLFA manages the
risk from local flood under its responsibilities identified in the Land Drainage Act 1991\(^8\) and the FWMA. The roles and responsibilities of the partners, organisations and landowners that manage the different flood risks are detailed further in Section 7 of this report.

There are notable risks in Anglesey from main rivers at Llangefni and also from smaller watercourses and tributaries at Llanfachraeth, Llandegfan, Dwyran and Beaumaris.

4.3.4 Sewer or Highway Flooding

Sewer or Highway flooding is caused when flows or volumes of surface water exceed the capacity of drainage infrastructure or where a blockage occurs. This type of flooding generally occurs following periods of intense rainfall leading to the drainage systems being overwhelmed. This type of flooding can be exacerbated in autumn when drainage gullies become blocked with leaves or other detritus.

Within IoACC, Dwr Cymru Welsh Water (DCWW) is the water company with the responsibility for managing and maintaining drainage systems (surface water and combined sewers). DCWW are required to record and report on property flooding within their management areas, as part of their service indicators known as Director General (DG) Registers. The register which records the flooding incidents within the county are known as DG5, which are provided to the Water Services Regulatory Authority, or Ofwat.

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\(^8\) Land Drainage Act 1991, schedule 2 paragraph 29

Figure 4.3: Historical Incidences of Surface Water Flooding in Anglesey
4.3.5  Reservoir Flooding

Flooding attributed to reservoirs occurs when a reservoir dam is overtopped or fails due to damage or collapse of the structure. The Pitt Review undertaken as a result of the floods in 2007 recommended that the Government should provide flood maps to identify areas that could be affected by a breach or overtopping to allow plans to be prepared for an emergency response. In 2008 the Department for Environment, Food and Rural Affairs (Defra) instructed the Environment Agency to assess the impact of dam breach flooding from all large raised reservoirs in England and Wales which were registered under the Reservoirs Act 1975.

The Reservoir Act classifies a registered reservoir as one that is capable of holding at least 25,000 cubic metres of water above the lowest natural ground level. More recently The Flood and Water Act 2010 reduced the capacity at which a reservoir will be regulated from 25,000m$^3$ to 10,000m$^3$.

Within Anglesey there are two reservoirs that fall under the Reservoir Act and the maximum extent of flooding has been modelled by the EAW to show the areas that would be impacted by a breach or failure of the dams. Neither of these reservoirs have been designated as ‘High Risk’ by the EAW and when the FWMA is fully implemented it will ensure that only those reservoirs assessed as a higher risk are subject to regulation.

4.3.6  Coastal Flooding

Sea flooding occurs when water levels or waves overtop the crest of the coastal defences, or when defences are breached or collapse. The probability of breach is dependent on four main factors: weather conditions (generating large waves); wind direction (on-shore); high tides (particularly during spring tides) and the condition of the coastal defences. When these conditions combine the risk of flooding can be greatly enhanced as the predicted tide level can be raised by several metres. This phenomenon is know as a storm surge and occurred in Trearddur Bay in 2002 where the sea defences were overtopped flooding the town.

As a result of the flooding in the area IoACC has undertaken a regime of substantial expenditure on a flood alleviation scheme.

4.4  A Combination Event

Detailing individual sources of risk does not imply that flooding can only ever occur for one reason. Any and all of these sources mentioned above can come together to produce what are called combination events.

An example of a combination flood is one occurring during a period of intense or prolonged rainfall. The rain would increase water levels in watercourses, saturate ground, increase flow through the drainage system and could enter the public sewerage system, increasing pressure. As all of these factors combine, watercourses, drains and sewers could all reach maximum capacity and with nowhere else to go the water could overflow from all of them, resulting in a combination of river, sewer and surface water flooding.

On the coast, a combination event could involve flooding from the sea where a storm delivers intense rainfall on the land and a storm surge and stormy seas, at the same time as a high tide. This results in an increase in tide and wave levels at the same time as flow from rivers to the sea increases. If the two meet, coastal communities could experience a mix of flooding from the sea and a river.
Depending on the intensity of the rainfall and the waves, such an event could also cause an increase in coastal erosion, resulting in long term damage to the coast, which could exacerbate future flood risks.

Where there are complicated interactions of different sources, the LLFA will take a lead to ensure that investigation, assessment and appropriate mitigation measures are carried out.

### 4.5 Coastal Squeeze

A Defra (2003) guidance note on managed realignment defined coastal squeeze as; the process by which coastal habitats and natural features are progressively lost or drowned, caught between coastal defences and rising sea levels. See Figure 4.4 below for an illustration of this process.

As sea levels rise, increasing wave height and intensity, sea waters move further inland with the consequential loss of low lying habitats and damage to the features of the habitat and associated species within it. This loss of intertidal habitat is referred to as coastal squeeze, and while generally referred to in relation to habitat, it can also have an impact on flood and coastal erosion risk.

![Figure 4.4: Coastal Squeeze (The National Strategy for Flood and Coastal Erosion Risk Management)](image)

Decreasing the extent of foreshore in front of a defence, for example, can create deeper water with a consequent increase in wave size. This can undermine defences or make it more likely that defences are overtopped.

It is important to note the role that coastal features like beaches and sand dunes can play in wider coastal protection. They can be significant natural buffers to sea flooding if considered as part of an integrated approach.

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9 Chapters 4.4 and 4.5 National Strategy for Flood and Coastal Erosion Risk Management in Wales

management Strategy using natural processes and through this potentially reduce the maintenance costs or increase the lifespan of structures protected by them.

They also provide important ecological benefits such as fish nurseries, as well as recreational and tourism opportunities for local communities. These habitats can provide multiple benefits to society, the economy, and the environment.

Under Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC), Local Authorities must have regard to the conservation of biodiversity, which includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

4.6 Factors Increasing Flood Risk

Flood risk is a combination of probability and consequence, as there are a number of factors which will lead to higher probability of flooding in the future and more serious potential consequences, this will result in an increase in the risk of flooding in Anglesey. There are many factors that can increase flood risk including which are provided in Table 4.1 below:

<table>
<thead>
<tr>
<th>Factors which may increase flood risk in Anglesey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weather</strong></td>
</tr>
<tr>
<td>Rainfall;</td>
</tr>
<tr>
<td>Extensive storms;</td>
</tr>
<tr>
<td>Small-scale storms;</td>
</tr>
<tr>
<td>Temperature; and</td>
</tr>
<tr>
<td>Snowfall and snowmelt.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Table 4.1: Factors which may increase flood risk in Anglesey

4.7 Methodology for Identifying Areas of Risk

As part of the Council’s responsibilities as the LLFA under the FRR 2009, IoACC produced a Preliminary Flood Risk Assessment (PFRA) in 2011. The purpose of this report was to identify areas within the county that were at risk of flooding with significant consequences which were termed as ‘Flood Risk Areas’.
Significant consequences were defined by the Welsh Government (WG) and the Department for Environment, Food and Rural Affairs (Defra) within the guidance document ‘Selecting and Reviewing Flood Risk Areas for local sources of flooding – Guidance for Lead Local Flood Authorities’ as:

‘Clusters of areas above flood risk threshold with an affected population greater than 5,000 people at risk’

Under this guidance, no clusters were identified by EAW within Anglesey, and as such no areas are considered to be Flood Risk Areas.

As the population densities were unlikely to trigger the regulations for the majority of North Wales the LLFA’s for each county (in conjunction with EAW) derived new local thresholds to identify flood risk areas within their boundaries. A locally significant event was defined as:

- Where 5 or more properties have been flooded.

On this basis the LLFA undertook the preliminary study to provide an assessment of the flood risks using historical records held by the county overlain with flood modelling data provided by EAW, to identify the local Flood Risk Area’s within the County. The report determined that within the bounds of the county a total of 8 locations were identified that exceeded the thresholds and had been subject to historical flooding incidents.

4.8 Limitations of data

The assessment of flood risk to date within Anglesey County has been completed using the best information that is currently available. However, there are inherent limitations with this information and it is important that these are identified (See Table 4.2 on the following page).

The main data limitations were the consistency and reliability of the collection of past flooding information. IoACC has no information currently available relating to predicted future flood risk other than that provided by the EAW.
<table>
<thead>
<tr>
<th>Dataset</th>
<th>Main limitations</th>
<th>Future improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood Map for Surface Water</td>
<td>Modelling used a national methodology with a standard set of assumptions (such as storm duration, sewer loss allowance, etc) which may not be suitable for the whole of Anglesey.</td>
<td>Detailed surface water modelling within locally important flood risk areas will provide a better understanding of flood risk, mechanisms and consequences.</td>
</tr>
<tr>
<td>Areas Susceptible to Groundwater Flooding</td>
<td>This is a very high level dataset describing the proportion of each grid square that may be susceptible to groundwater flooding. It does not show the likelihood of groundwater flooding occurring.</td>
<td>Obtain the complete British Geological Survey (BGS) dataset for key areas, which provides a more accurate overview of areas where geological conditions suggest groundwater might emerge.</td>
</tr>
<tr>
<td>Flood History across Anglesey</td>
<td>Flood history collected through the PFRA is limited. It is difficult to make a fair and accurate assessment of flood risk across Anglesey based on this alone.</td>
<td>More comprehensive flood recording and flood investigation in the future is essential (this is currently underway, as a requirement of the FWMA and will provide a better level of flood history in the future).</td>
</tr>
</tbody>
</table>

Table 4.2: Limitations of main datasets used to prioritise locally important flood risk areas
5. Climate Change

‘Communities living behind good coastal defences currently protecting them against a flood with a chance occurrence of 1 in 100 each year would experience a drop in standard of protection by the end of the century to as low as 1 in 5 each year if we were to follow a business-as-usual flood management policy.’

5.1 Climate Change

Climate change is one of the most serious threats facing the world’s economy and society. The devastating floods, droughts and storms that we have seen in the UK and across the world in recent years show all too clearly how vulnerable we are to climate extremes and how devastating the consequences can be.

There are no easy solutions and to achieve a long term response to climate change a fundamental shift is required in the way we conduct our lives, generate and use energy over the coming century. In the UK the government is committed to implementing a programme to reduce our emissions through legislation, education, substantial investment in clean technologies and green electricity generation.

Significant scientific research has been conducted on climate change by United Kingdom Climate Projections (UKCP09), which is funded by the Department for Environment, Food and Rural Affairs (Defra) on behalf of the UK Government and the Devolved Authorities. The research is based on sound science and projections provided by the Meteorological Office (Met Office), which is focused on the UK. The aim of the research and projections are to assist those needing to plan how they will need to adapt to a changing climate.

To assess the potential impacts that climate change may have on extreme rainfall, river flood flows, sea level rise and storm surges, UKCP09 have provided a large toolkit of information and data including ‘change factors’ which have been developed to help Risk Management Authorities use the UKCP09 information in a timely and cost-effective way and to provide a consistent approach. The change factors quantify the potential change (as either mm or percentage increase, depending on the variable) to the baseline.

Guidance has been provided on Climate Change from WG; Adapting to Climate Change: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales, December 2011. It is recommended here that options are developed, planning for the change factor covering the whole of the decision lifetime. Change factors for river flood flows, extreme rainfall, mean relative sea level rise and storm surges are provided in the guidance and are to assist in investment planning decisions.

Short term flood risk management decisions and actions should be set within a longer term strategic planning framework. In Wales there are plans in place to address the increasing flood risk and to guide adaptation to climate change. The strategic plans are:

- Catchment Flood Management Plans\textsuperscript{11} – produced by Environment Agency Wales.

\textsuperscript{11} CFMPs are high level non statutory plans for inland flood risk produced by Environment Agency Wales
Shoreline Management Plans\textsuperscript{12} – Produced by Coastal Groups, composed of maritime Local Authorities, Environment Agency Wales, Countryside Council for Wales and others.

Catchment Flood Management Plans consider inland flood risk now and in the future, up to 100 years ahead, and assess the potential impacts of climate change and land use change on future flood risk. Similarly, Shoreline Management Plans assess the threat to the coast from erosion and flooding. These plans look at the current and future scenarios over a 100-year timeframe. Both Catchment Flood Management Plans and Shoreline Management Plans are subject to periodic review as new information becomes available. The policies and actions set out in the plans may change with time to reflect adaptation to increasing risks and climate change\textsuperscript{13}.

5.2 Climate Change in Wales

A climate change risk assessment for Wales was produced by Defra in January 2012 as part of the UK Climate Change Risk Assessment (CCRA), under the Climate Change Act 2008. The assessment reviewed all of the relevant and available data drawing on sector reports and recent research literature, to provide projections for climate change for the 2020s, 2050s and the 2080s compared with recorded weather data from 1961 to 1990. The document reviewed Low, Medium, and High Emissions scenarios for each of the time periods and produced predictions for changes and perceived impacts on variations in temperature and weather conditions.

The report states that there will be an increase in flooding events on the coast and inland, affecting people, property and infrastructure. It is predicted that flooding will increase from a combination of different sources which will cause increase in disruption to communities, the economy and employment. Flooding would also affect water supplies, waste water disposal, energy supplies and health services for areas not directly impacted by the flooding.

The key findings for Wales from the 2050’s Medium Emissions scenario are:

\textbullet{} An increase in mean winter temperatures of 2.0 °C (very unlikely to be less than 1.1 °C and very unlikely to be more than 3.1 °C);

\textbullet{} An increase in mean summer temperatures of 2.5 °C (very unlikely to be less than 1.2 °C and very unlikely to be more than 4.1 °C);

\textbullet{} An increase in mean winter precipitation of 14% (very unlikely to be less than 2% and very unlikely to be more than 30%);

\textbullet{} A decrease in mean summer precipitation of 17% (very unlikely to be less than a 36% decrease and very unlikely to be more than a 6% increase); and

\textbullet{} Sea level rise is projected to increase by between 0.10 m and 0.32 m by the 2050’s.

\textsuperscript{12} SMPs are high level non statutory plans for coastal erosion and flooding produced by Coastal Groups

\textsuperscript{13} Future flooding in Wales: flood defences. Possible long-term investment scenarios
The Welsh Government is working with the Environment Agency Wales to develop updated guidance on what we should plan for in relation to climate change when undertaking flood or coastal erosion risk management works.
6. Regional and Local Plans

There are a variety of publically available documents which identify flood risk within Anglesey. These include:

- Isle of Anglesey Council Preliminary Flood Risk Assessment;
- North West Wales Catchment Flood Management Plan;
- West of Wales Shoreline Management Plan 2;
- River Basin Management Plan – Western Wales River Basin; and
- Multi Agency Flood Plans.

A brief review of each document is provided in the following sections:

6.1 Isle of Anglesey County Council Preliminary Flood Risk Assessment

The Isle of Anglesey County Council Preliminary Flood Risk Assessment (PFRA) was published in 2011 (as per the Flood Risk Regulations 2009). The PFRA is aimed at providing a high level overview of flood risk from local sources, including surface water, groundwater and ordinary watercourses. It combines modelling of rainfall events carried out by the Environment Agency with historical locally collected information to identify the local flood risk across the county.

The Environment Agency Wales has used a national methodology, which has been set out by Welsh Government, to identify Indicative Flood Risk Areas across Wales. Anglesey does not have any Indicative Flood Risk Areas within its boundary and therefore Isle of Anglesey County Council are not required to carry out further action under the Flood Risk Regulations until the next review of the PFRA in 2017.

The full report is provided in the following link:

6.2 North West Wales Catchment Flood Management Plan

The North West Wales Catchment Flood Management Plan looks at fluvial risk and covers an area of approximately 3,400 km², which includes the full extent of Anglesey. The main source of flood risk within Anglesey is from surface water and sewer surcharge and from the Afon Cefni which there are both river and tidal risks.

The report identifies that property and infrastructure are at risk in a number of small towns and villages including Amlwch, Llangefni, Beaumaris and Menai Bridge and include the A5 and the A55 Trunk Roads.

The full summary report can be found here:


6.3 West of Wales Shoreline Management Plan 2

The West of Wales Shoreline Management Plan 2 (SMP2) covers the coastline from St Ann’s Head in Pembrokeshire to the Great Orme in Llandudno, Conwy. It is one of the largest SMP in the UK covering over 1,000 km of shoreline, however, most of the coastline relating to Anglesey within this SMP is covered by four Policy Development Zones (PDZ16 - 19).

The SMP provides high level policies for management of the coast in relation to flood risk, coastal erosion, natural environment, historic environment and the economy. It also looks at how management should change over the next 100 years in order to achieve sustainable management of the coast.

The shoreline of Anglesey is varied, much of which is made up of natural rock headlands particularly on the north coastline from Holy Island through to Dulas, which are given a No Active Intervention policy (Policy decision to not to invest in providing or maintaining defences or natural coastline), and the bays between the headlands usually containing sea defences (natural) to protect the residential hinterland, which are mostly given a Hold The Line policy (Policy decision to maintain or upgrade the level of protection provided by defences or natural coastline).

The policy of Hold The Line may not be sustainable for some frontages and the Managed Realignment Policy has been adopted for various areas between Porth Nolba and Rhosneigr, at Borthwen, between Holyhead and the A5 Bridge, at Newlands Park and in the Alaw Estuary, at Porth Swatan and Cemlyn Bay in order to promote a consistent Strategy being produced to work with natural processes to provide a more natural and sustainable defence.

The full SMP and appendices can be found here:

http://www.westofwalessmp.org/content.asp?nav=23&parent_directory_id=10
6.4 River Basin Management Plan – Western Wales River Basin District

The River Basin Management Plan for the Western Wales River Basin is a plan to achieve Water Framework Directive requirements to improve the water quality of surface water bodies.

While this plan does not identify flood risk or consider management of flood risk, it must be taken into account when carrying out any flood risk management works. Works must not cause the deterioration of water quality in any surface water body or prevent improvement targets from being met. The plan also encourages sustainable drainage systems (SuDS) to be used in new development to remove contaminants from surface water as well as reducing flood risk.

The Western Wales River Basin Management Plan report can be found here:


6.5 Multi Agency Flood Plans

The North Wales Local Resilience Forum (LRF) has identified flood risk as a very high risk in the North Wales Community Risk Register. The LRF produce Multi Agency Plans for responding to emergencies within North Wales including flooding.

The Civil Contingencies Act (2004) requires Category One Responders (Police, Fire, Ambulance, Health, Environment Agency, Coastguard, Local Authorities etc) to have plans in place to respond to all emergencies. Development of Multi-Agency Flood Plan (MAFP) allows all responding parties to work together on an agreed coordinated response to severe flooding.
7. Managing the Likelihood of Flooding

The Pitt Review identified inadequate and unclear responsibilities across the organisations that undertake a flood management role and it was seen as a significant factor in the poor response to historic flooding. The Pitt Review recommended\(^\text{14}\) that future legislation (the Flood Water Management Act 2010\(^\text{15}\)) addresses all sources of flooding, clarifies responsibilities and facilitates flood risk management. The FWMA subsequently defined certain organisations as ‘Risk Management Authorities’ in Wales whom have roles and responsibilities around flooding. The Risk Management Authorities in Anglesey are:

**Environment Agency Wales** is responsible for managing flood risk from **main rivers** and the **sea**, and also has a strategic overview role over all flood and coastal erosion risk management and for regulating the safety of reservoirs. EAW also has a key role in providing flood warnings to the public.

**Isle of Anglesey County Council** as a lead local flood authority, is responsible for taking the lead in managing flood risk from all local sources, including **surface water**, **groundwater** and **ordinary watercourses**.

**Dŵr Cymru Welsh Water** (DCWW) is the regional water and sewage treatment company serving the Anglesey area. DCWW is responsible for flood risk from **sewers** and **burst pipes**.

**Isle of Anglesey County Council as a Highways Authority** is responsible for managing flood risk on roads and **highways** within the area. Local Authorities in Wales act as highway authorities in respect of local roads.

**North and Mid-Wales Trunk Road Agent** (NMWTRA) is responsible for the maintenance and improvement of **trunk roads** across Anglesey on behalf of the Welsh Government. NWTRA must ensure that:
- Road projects do not increase flood risk;
- Road discharges do not pollute receiving waterbodies\(^\text{16}\).

Contact details for each of these Risk Management Authorities can be found in Appendix A.

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\(^\text{14}\) The Pitt Review, Section 3, Chapter 8, Recommendation 28

\(^\text{15}\) Section 6(15) of the Flood and Water Management Act 2010: http://www.legislation.gov.uk/ukpga/2010/29/contents

\(^\text{16}\) http://www.highways.gov.uk/knowledge/18542.aspx
All of the risk management authorities identified above have the following new responsibilities under the Act:

- **A duty** to co-operate with other risk management authorities within the function of their flood and coastal erosion risk management role, which includes sharing flood data and information; and

- **Authority to take on** flood and coastal erosion functions from another risk management authority when agreed by both sides.

Co-operation with other risk management authorities includes the following:

- Discussing with other risk management authorities before designating structures;
- Report local flooding incidents to the IoACC Flood Investigation Officer on a monthly basis;
- Report flood assets, as defined by agreed criteria, as and when they are made known;
- Assist with Flood Investigation Reports when required;
- Provide local knowledge on SuDS regarding applications in their area;
- Ensure that members of the public are guided to the appropriate authority or organisation; and
- Share expertise, data, information and local knowledge and work jointly to understand and reduce flood risk across Anglesey.

Each risk management authority also has specific responsibilities under the FWMA; which are described in the next section.

It is important to stress that flood risk management is not something that can be left solely in the hands of certain organisations and forgotten by everyone else. **Households, businesses and landowners** have their part to play too. Even if this Strategy was being devised at a time of substantial public sector budgets, the organisations would still not be able to prevent all floods or solve all concerns. That is why the powers and responsibilities of Anglesey’s citizens are also recorded in this section.
7.1 Responsibilities of Environment Agency Wales

The Environment Agency Wales (EAW) has always led on the management of the risks of flooding from main rivers and the sea. However, in recognition of the links between coastal flooding and coastal erosion, particularly in terms of consequences, and as an objective of the FWMA the EAW has new operational responsibilities in relation to coastal erosion as well as operational responsibilities for flooding from rivers and the sea. The EAW also has a wider oversight role for all flood and coastal erosion risk management in Wales.

As part of their oversight role the EAW will lead on the provision of technical advice and support to the other Risk Management Authorities. They will also lead on national initiatives such as Flood Awareness Wales, the national raising awareness programme, and the single point of contact for enquiries and information on flood risk, currently being piloted via their Floodline Warning Service.

The Flood and Water Management Act 2010 places a number of statutory duties on the Environment Agency Wales including:

- Reporting to the Minister on flood and coastal erosion risk in Wales including the application of the National Strategy; and
- The establishment of Regional Flood and Coastal Committees.

The Environment Agency Wales will be the sole Risk Management Authority charged with monitoring and reporting on the National Strategy’s implementation. In undertaking this role they will:

- Collect data on progress from Risk Management Authorities using existing avenues wherever possible;
- Report factual information to Welsh Government; and
- As requested, provide interpretive advice to the Welsh Government.

It will be for the Welsh Government to determine what, if any, action should be taken if the reports from the Environment Agency Wales suggest the National Strategy is not being implemented or that actions being taken are increasing levels of risk.

In addition to their statutory duties, the Environment Agency Wales has a number of what are called permissive powers. These are powers that allow them to do something, but do not compel them to and include:

- Powers to request information;
- The ability to raise levies for local flood risk management works, via the Regional Flood and Coastal Committees;
- Powers to designate certain structures or features that affect flood or coastal erosion risk;
The expansion of powers to undertake works to include broader risk management actions; and

The ability to cause flooding or coastal erosion under certain conditions.

This new allocation of responsibilities is also consistent with the EAW’s role in relation to the Flood Risk Regulations 2009, which allocates specific responsibility for conducting assessments in relation to mapping and planning the risks of flooding from main rivers, the sea and reservoirs to the EAW as well as providing guidance to Local Authorities on these matters for flooding from other sources.

Under the Regulations the EAW will also take on an assessment and coordination role at a national level, ensuring the correct information is passed back to the European Commission.

7.1.1 Coastal Erosion Risk Management Authority

EAW is a coastal erosion risk management authority with the power to protect land against coastal erosion and to control third party activities on the coast. This includes the construction of private defences or the removal of beach material. Importantly since October 2011 Lead Local Flood Authorities have required Environment Agency approval to undertake coastal protection works.

7.1.2 Emergency Planning

EAW contributes to the development of multi-agency flood plans, which are developed by Local Resilience Forums (LRFs) to help the organisations involved in responding to a flood to work better together. They also contribute to the National Flood Emergency Framework for England and Wales which includes guidance on developing and assessing these plans.

They are responsible for providing advice to planning authorities in development and flood risk; providing fluvial and coastal flood warnings; monitoring flood and coastal erosion risks and supporting emergency responders when floods occur.

They work with the Met Office to provide forecasts and warnings of flooding from rivers and the sea in England and Wales.

The EAW and other asset operating authorities also have a role in proactive operational management of their assets and systems to reduce risk during a flood incident.

7.1.3 Main Rivers

Main Rivers are a statutory type of watercourse. A main river is defined as a watercourse marked as such on a main river map designated by Defra (Under the Water Resources Act 1991), and can include any structure or appliance for controlling or regulating the flow of water in, into or out of a main river. The EAW has powers to carry out flood defence works apply to main rivers only. The overall responsibility for maintenance of Main Rivers, however, lies with the riparian owner.

The EAW can also bring forward flood defence schemes through the Regional Flood and Coastal Committees, and it will work with Lead Local Flood Authorities and local communities to shape schemes which respond to local priorities.
7.1.4 Coastal Flooding

EAW is the lead organisation responsible for all flood and erosion risk management around the coastline of Wales, including tidal flood risk. EAW leads the country in developing a coastal management plan that works at local, regional and national level, with partner organisations, including local authorities, putting agreed plans into practical action.

EAW also has a regulatory role in consenting works carried out by others in, or adjacent to water courses and sea/tidal defences to ensure that they have regard to flood risk and do not cause unnecessary environmental damage or impacts.

7.1.5 Reservoirs

The EAW enforces the Reservoirs Act 1975, which is the safety legislation for reservoirs in the United Kingdom. EAW is responsible as the Enforcement Authority for reservoirs that have a storage capacity greater than 25,000 m³ (above the natural level of the surrounding land) and, once the relevant parts of the Flood and Water Management Act have been commenced, reservoirs with a capacity of 10,000 m³.
As the Enforcement Authority the EAW are responsible for:

- Maintaining a register of reservoirs, and making this information available to the public;
- Ensuring that reservoirs are designed and constructed using the correct design standards;
- Ensuring that the owner (undertaker) has appointed an engineer to inspect the reservoir periodically;
- Ensuring that the owner commissions regular inspections of the reservoir by an inspecting engineer;
- Ensuring that the owner carries out essential works required in the 'interests of safety' as soon as practicable under the supervision of a qualified civil engineer (from an inspecting engineer panel);
- Influencing, warning, cautioning and ultimately prosecuting non-compliant owners;
- Commissioning construction engineers, supervising engineers, inspecting engineers and essential works required in the 'interests of safety' in the event of non-compliance and recouping costs incurred from the owner;
- Producing a biennial report about our enforcement and operational activities to the Department for Environment, Food and Rural Affairs (Defra) and to the Welsh Government; and
- Acting in an emergency if the owner fails to take appropriate action.

The Environment Agency has now produced reservoir flood maps which show the effects on the downstream catchment of a dam breach for approximately 2000 large raised reservoirs which they regulate under the Reservoirs Act 1975. These have been sent to reservoir owners and the relevant local authorities.

### 7.1.6 Single Environment Body for Wales

The Welsh Government is currently reviewing the role of the environmental public bodies operating in Wales; primarily the EAW, the CCW and the Forestry Commission Wales. The WG’s intention in doing this is to undertake an efficiency drive and merge the three bodies together and establish one single environment body for Wales.

When established, the new organisation Natural Resources Wales (Cyfoeth Naturiol Cymru) will become operational on 1st April 2013. Natural Resources Wales (NRW) would take on the functions of these three organisations insofar as they operate in Wales. This new body would take on all of the responsibilities of the Environment Agency in relation to flood and coastal erosion risk management in Wales.
7.2 Responsibilities of Isle of Anglesey County Council

The Flood and Water Management Act 2010 identified Isle of Anglesey County Council as the Lead Local Flood Authority for the district. IoACC are responsible for taking the lead in managing flood risk from local sources. This includes surface water, groundwater and ordinary watercourses and also where there is an interaction between these sources and main rivers or the sea. IoACC also has other related roles in emergency planning, regulatory services and road drainage; detailed in the following sections.

Following implementation of the Act, the management team for IoACC chose the Highways & Waste Management Services department to take the lead in ensuring the Council’s compliance with legislation and to ensure that all relevant departments and external agencies assist to fulfil the requirements of this Act. The department already carried out similar duties and had formed the necessary relationships with other departments and external bodies to undertake this role. The Head of Service for Highways, Waste Management has the delegated authority for the operational implementation of the Strategy.

The diagram below illustrates many of the departments within IoACC that have a part to play in reducing flood risk and implementing the Act as a Lead Local Flood Authority.
7.2.1.1 As a Lead Local Flood Authority

The FWMA 2010 identifies IoACC as the LLFA for the administrative Isle of Anglesey. This gave the council a number of **statutory duties** in overseeing the management of local flood risk from surface water, groundwater and ordinary watercourses such as streams and ditches (including lakes and ponds). It also gave IoACC a number of **permissive powers** which allow them to do something, but do not compel them to and are defined in Table 7.1 below:

<table>
<thead>
<tr>
<th>Statutory duties</th>
<th>Permissive powers</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Strategic leadership</td>
<td>▪ Powers to designate structures and features that affect flood or coastal erosion risk;</td>
</tr>
<tr>
<td>▪ Comply with the National Strategy</td>
<td>▪ Powers to request information;</td>
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<tr>
<td>▪ Co-operate with other authorities</td>
<td>▪ The expansion of powers to undertake works to include broader risk management actions; and</td>
</tr>
<tr>
<td>▪ Recording and investigating flood incidents</td>
<td>▪ The ability to cause flooding or coastal erosion under certain conditions.</td>
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<tr>
<td>▪ Keep a register of assets likely to affect flood risk</td>
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<tr>
<td>▪ Contribute to sustainable development</td>
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</tbody>
</table>

Table 7.1: Isle of Anglesey County Council Statutory Duties and Permissive Powers

LLFA in Wales will also take on the role of the SuDS Adopting and Approving Body (SAB) in relation to sustainable drainage systems. In this role they will be responsible for both approving the original design of the SuDS and adopting and maintaining the finished system.

The minimum statutory content of Local Strategies is set out in Section 10 of the FWMA and LLFA’s are required to consult with the public in preparing them.

A number of Local Authorities in Wales are also designated coastal erosion risk management authorities under the Coast Protection Act 1949, providing them with certain responsibilities in respect of coastal erosion and coastal protection. Formally referred to as Coastal Protection Authorities they may also be referred to as Coastal Local Authorities or Maritime Authorities and retain their current permissive powers in relation to coastal erosion risk management.

Some of these duties and powers which require more detail have been explained in the following section.

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17 Section 10(1) of the Flood and Water Management Act 2010
18 Section 10(5) of the Flood and Water Management Act 2010
19 Section 13 of the Flood and Water Management Act 2010
20 Section 19 of the Flood and Water Management Act 2010
21 Section 21 of the Flood and Water Management Act 2010
22 Section 27 of the Flood and Water Management Act 2010
7.2.2 Highways & Waste Management Services Department as Leader of LLFA

The Highways & Waste Management Services Department in Anglesey have taken the lead in delivering and implementing the required duties of the Act. Some of the measures outlined have been core activities for the council for a number of years and processes are in place to deliver those measures. Other measures, however, relate to the new responsibilities which have recently been assigned and will require new processes to be developed and implemented.

7.2.2.1 Strategic Leadership

IoACC is responsible for co-ordinating and overseeing Flood & Coastal Erosion Risk Management on a day to day basis on the Island. In practice IoACC took the lead in dealing with groundwater, surface water and ordinary watercourse flooding incidents prior to the changes contained within the FWMA; however the responsibility has now been allocated to IoACC by law.

At the onset, this involves developing this Strategy which will set out IoACC’s approach to dealing with flooding identified under the Act. It also involves ensuring all flood risk authorities are aware of their responsibilities, monitor progress and activity by all organisations involved and communicating with the public and between organisations.

7.2.2.2 Recording of Flood Incidents

To assemble an accurate picture of flood risk across Anglesey requires the collection of precise and useful records from actual flood incidents occurring across the County.

An LLFA has a duty to record all sources of significant flooding events. The national definition of significant is unavailable therefore the decision whether or not to record a flood is at the discretion of the LLFA. IoACC have set a standard to record every known flood incident that occurs in the county. A detailed investigation will be carried out when certain criteria are met, which is explained in more detail in the next section.

The Highways & Waste Management Services Department categorise flooding into three types; flood incidents caused by overcapacity during storm events, land drainage issues caused by issues such as blockages that are not caused by storm events and drainage infrastructure related problems.

IoACC have already begun to assemble a record of flood incidents and database of land drainage investigations which will be imported into an infrastructure management software package. IoACC will continue to record and manage all future drainage investigations and flood incidents occurring across the county using this system. When combined with mapping of future flood risk in the county the historic records will help provide a picture of the highest flood risk areas in Anglesey.
Figure 7.2: Example of map showing records of flood incidents in infrastructure management software.

Figure 7.3: A detailed view of a flooding incident recorded using infrastructure management software.
All statutory bodies, including DCWW will also receive and record information regarding flood incidents which may come under IoACC responsibility; therefore a process needs to be formulated so that this data can be efficiently shared across the authorities. The responsibilities of other relevant flood authorities are detailed in further sections of this Strategy.

Partnership working and collaboration is an integral part of managing flood risk and is reflected in the duty to co-operate within the Act. The measure for the future is to build stronger links with local community groups, the public, landowners and private organisations that we expect to take a proactive involvement in flood risk management and provide us with information on flood incidents.

IoACC’s aim is to obtain as much information on flooding incidents that occur across Anglesey and in order to do this we encourage the public to use the Council’s website to provide information that we may not be aware of.

In order to build consistent and accurate records of local flooding in Anglesey we need as much information as possible on historical and recent floods from individuals, businesses and stakeholders.

If you become aware of a flood in your area, please provide us with the following information via http://www.anglesey.gov.uk

Your name and contact details:
- Date of flood;
- Location of the flood (map references or precise address);
- The duration of flood;
- The depth of flood at its worst;
- Where did the water come from? e.g. overflowing river;
- What was the weather preceding the flood, rainfall if known;
- Did water enter a property? Which ones;
- What damage did the flooding cause? e.g. blocked road for several hours;
- Was any action taken at the time to reduce the flood risk? e.g. flood gates;
- Any other relevant information; and
- Photographs and videos of the flood and damage preceding the flood.

7.2.2.3 Investigation of Flood Incidents

An LLFA has a duty to investigate all sources of significant flooding events. The national definition of significant is unavailable therefore the decision whether or not to investigate a flood is at the discretion of the LLFA and the comprehensiveness of the investigation will be adjusted to reflect the significance of the incident and the resources available. In the event of very widespread, significant flooding affecting large areas of Anglesey, our ability to investigate every incident in detail is likely to be severely limited.

The aim of flood investigations is to bring all useful information together in one place, providing an understanding of situations, outlining possible causes of flooding and potential long-term solutions to protect people and their homes from flooding. Further recommendations will also be made to highlight potential flood risk management actions. Reports will provide a clear and thorough understanding of
flooding situations, but our duty to investigate does not guarantee that problems will be resolved and cannot enforce other authorities into action.

A flood investigation will involve consultation with the relevant risk management authorities, landowners and private organisations involved, all of whom will be expected to cooperate and provide comments.

There are 4 stages of flood investigations for flooding incidents and land drainage issues in Anglesey:

- **Stage 1**: Carry out an initial assessment; including a risk evaluation analysis to determine whether a site inspection is deemed necessary or progression onto **Stage 2**;
- **Stage 2**: Carry out a detailed investigation (Flood Investigation Report) to identify the source of flooding, how many properties are affected, and what measures can be carried out to help manage the risk or prevent the flooding incident occurring in the future. The report will be published and a copy sent to all relevant parties involved;
- **Stage 3**: Apply for funding for a feasibility study of alleviation schemes; and
- **Stage 4**: Design and build the alleviation scheme (subject to funding).

### Stage 1 – Initial Assessment

Once an incident of flooding or a drainage issue has been reported and recorded, if it is unclear which authority holds responsibility for managing the incident or it has been identified that IoACC is the responsible authority; a site inspection may be undertaken to identify the cause of the problem. However, if it is clear that another authority is responsible or a report has already been submitted from the responsible authority; a site inspection will not be necessary.

If a site inspection is deemed necessary and undertaken, it should ascertain which other authority has an involvement and also outline their responsibility with regards to the flooding incident. IoACC will record every flood incident that occurs in the county on the Authority's Infrastructure Management software, and a simple Report which will include various fields for information and flood officer notes will be completed when a site inspection is undertaken. The site Inspection Report will also highlight any other follow up action required such as contacting other relevant parties or landowners which have an involvement or responsibility in the flooding incident.

All reported internal flooding incidents, either new or which have been previously recorded on our historical database will require a Stage 2 Detailed Site Investigation.

### Stage 2 - Detailed Investigation

Stage 2 investigations will result in a Flood Investigation Report (FIR) being generated, which aims to bring all the information together in one document, providing an understanding and outline of the possible cause of the flooding incident. The report will also identify which other authority should have an involvement, including responsibility for the flooding incident and identifying possible prevention measures or potential long-term solutions.

A detailed investigation should be carried out where the following eligibility criteria are met, or it is in the public interest to do so:
Where there is a risk to life as a result of flooding;

Where an internal flooding of one or more property (domestic or commercial) has been experienced;

Where a major transport route was closed for more than 10 hours as a result of flooding; or

Where critical infrastructure (e.g. power station) was effected by flooding for more than 10 hours; and/or

Where there is a risk of internal flooding to several properties (domestic or commercial) during one single flood incident.

The FIR will be published within 3 months of an incident being reported to IoACC. However there will be cases where this time frame will be extended (e.g. widespread flooding across the county).

During widespread flooding, the method for prioritising flood investigations will be prioritised in accordance with the Authority’s Evaluation Analysis Matrix; mainly taking into account the following flood characteristics:

- The number of properties flooded internally; and
- The frequency of flooding based on historical records from the past 10 years taking into account the storm intensity over such a period.

Once completed all FIR’s will be published on Isle of Anglesey County Council website at http://www.anglesy.gov.uk

Stage 3 - Application for Funding

If a flood incident has been identified which has affected several properties, a major transport route, and critical infrastructure or where it is likely to occur again, a Stage 3 investigation is initiated to apply for Welsh Government funding to carry out a project appraisal report (PAR), unless a lower limit of consequences is identified.

The purpose of stage three is to identify if any of the potential long-term solutions identified in Stage 2 are feasible as future alleviation schemes.

Stage 4 - Alleviation scheme

The final stage is the design and build of the alleviation scheme (subject to funding) that has been assessed in stage 3.

Currently IoACC has one alleviation scheme that is in the process of applying for funding. This scheme is in Allt Goch, Beaumaris.

7.2.2.4 Register of Flood Risk Assets

An asset in the context of flood risk management is an artificial or natural structure that works as a flood defence or as part of a drainage system or other feature considered likely to have a significant impact on flood risk. An example could be a trash screen, culvert, pumping station, walls or banks of a river channel.
Isle of Anglesey County Council is required to keep an asset register of structures or features which it considers are likely to have a significant effect on local flood risk. Information on ownership and state of repair will be held on the register and it will be made available for inspection by the public at all reasonable times.

The register will take the form of a live database, which will be constantly updated in the light of flood incidents, flood investigations and changes to infrastructure. It is proposed that new sustainable drainage assets will be recorded and asset data may also be captured through local studies, such as the Surface Water Management Plans. In the first instance the recording of assets will be prioritised by its location; future flood risk mapping and known flood risk areas taken from the Preliminary Flood Risk Assessment will be used to analyse the ‘significance’ of each flood risk asset. The vulnerability of the asset’s surroundings will also be used to determine the consequences of its failure.

The council is also required to keep an asset record for use by risk management authorities. The record will provide further information about each asset and contact details for the owner or maintainer. This database will be used to investigate cases where flood risk asset issues have been reported.

Assets require inspection and maintenance in order to prevent failure, which can otherwise be caused by deterioration or increased frequency and magnitude of flooding. There has often been much confusion over the ownership and maintenance responsibility of local flood risk assets. This is likely to be due to local drainage infrastructure commonly being hidden underground or along land boundaries, where landowners either do not realise or acknowledge that they have any responsibility.

Within Anglesey most of the coastal defence assets are the responsibility of IoACC, the Harbour Authority (in Holyhead) or private land owners. Stena Line Ports Ltd, are the statutory Harbour Authority within Holyhead and is responsible for the 2.5 km historic breakwater which shields the deep water port. The WG and Network Rail have some defences (usually where the road or rail is the seaward side of the infrastructure) at the A5, A55, and rail crossings at the Stanley Embankment in Valley.

It will take many years before the register is sufficiently comprehensive to be of real value in flood risk management. Isle of Anglesey County Council has begun to populate a register of all existing information on structures that are likely to have a significant effect on flood risk. These assets include:

- Coastal defences;
- Ordinary watercourses on IoACC owned land;
- Fluvial assets on IoACC owned land;
- Demountable defences; and
- Maintenance schedules.
7.2.2.5 Sustainable development

IoACC has a duty to aim to contribute towards the achievement of sustainable development in the exercise of flood or coastal erosion risk management functions and to have regard to the Welsh Ministerial guidance on this topic.

The guidance provided, Sustainable Development: Guidance to Risk Management Authorities Section 27 – Sustainable Development Nov 2011, does not prescribe a single approach that must be followed, rather it provides a variety of suggestions of how to aim to make a contribution towards the achievement of sustainable development while carrying out duties in managing local flood risk under the Act.

The ways in which IoACC will work towards achieving sustainable development in the Flood & Coastal Erosion Risk Management role are described in Chapter 10.

7.2.2.6 Designating Assets

The relevant clauses of the Flood and Water Management Act have now been commenced (August 2012), therefore empowering Isle of Anglesey County Council and the Environment Agency Wales as ‘designating authorities’. That is, they have the permissive powers to ‘designate’ features or structures which they consider affects flood risk and it is not owned by the LLFA or the Environment Agency.
If an asset becomes ‘designated’ its owner cannot alter, remove or replace a designated structure or feature without the consent of the designating risk management authority. The aim of designating flood risk assets is to safeguard them against unchecked works which could increase flood risk in the area. Designation of features or structures is not something that will be done regularly but only conducted when it is deemed that there are concerns about the asset.

*Note: designation of an asset does not mean there is a duty on anyone to maintain it in its current condition.*

### 7.2.2.7 Meeting the Flood Risk Regulations

The Flood Risk Regulations 2009\(^\text{23}\) (FRR) replicate the allocation of responsibility of local flood risks and have allocated specific responsibilities for conducting assessments. All LLFA are required to produce a Preliminary Flood Risk Assessment (PFRA). The first PFRA was written in June 2011 and published in December 2011 and can be found in the following location:


The information contained within will be reviewed in 2017 and every six years thereafter. The Flood Risk Regulations also require that all LLFA’s prepare Flood Hazard and Flood Risk Maps for any indicative Flood Risk Areas to be published by December 2013. This will be followed by a Flood Risk Management Plan which will be published in December 2015.

### 7.2.2.8 Consenting Works on Ordinary Watercourses

IoACC are responsible for the regulation of ordinary watercourses. This includes issuing of consents for any changes to ordinary watercourses that might obstruct or alter the flow of an ordinary watercourse and enforcement action to rectify unlawful and potentially damaging work to a watercourse. This role was previously held by the EA but has been transferred to enable the LLFA to implement their new roles and responsibilities in respect to local flood risk. The EAW still retain their responsibility of consenting works on main rivers.

If riparian owners or other bodies wish to culvert an ordinary watercourse or insert any obstruction, consent is required. The purpose of ordinary water course regulation is to control activities that may have an adverse flooding impact.

It is essential that anyone who intends on carrying out works either temporary or permanent in, over, under or near a watercourse or flood defences (including sea defences) obtain any necessary consents before commencing works. Consents on forms of obstruction identified by the Land Drainage Act will be charged. Riparian owners are encouraged to contact the council to discuss any applications, and an application will be provided on request.

It is widely recognised that culverting has many adverse effects on flooding. Applications to culvert a watercourse will generally only be granted where it has been demonstrated that there is no viable alternative, that there are overriding requirements for the works and that mitigation measures have been applied.

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\(^{23}\) Flood Risk Regulations 2009
proposed, and considered by IoACC to be acceptable. The Authority supports a general statement to
discourage culverting of watercourses:

7.2.2.9 As SuDS Approval Body (SAB)

Sustainable drainage systems (SuDS) are a change of approach from conventional drainage which aimed
to convey water as quickly as possible from a development, often causing watercourses downstream to
overload and potentially cause flooding. The key principles that influence the planning and design of SuDS
are:

- Storing runoff and releasing it slowly (attenuation);
- Allowing water to soak into the ground (infiltration);
- Slowly transporting (conveying) water on the surface;
- Filtering out pollutants; and
- Allowing sediments to settle out by controlling the flow of the water\(^{24}\).

SuDS are also an opportunity to ensure that amenity and biodiversity are considered with the same
importance as managing volumes of water.

The Flood and Water Management Act 2010 assigns Isle of Anglesey County Council the role of a SuDS
Approval Body (SAB) for the island. When this aspect of the Act is enacted (expected by April 2013) full
details of how this will be implemented will be agreed with partners and publicised widely. The SuDS
approval process will be integrated with the planning process; with discussions commencing at the earliest
possible stage.

It is expected that any development requiring planning permission will require a drainage approval and that
when the SAB is established, it will be required to:

- Assess the drainage design for all construction work which has drainage implications;
- Adopt all SuDS schemes which connect more than one property; and
- Ensure that all adopted SuDS schemes are properly maintained.

SuDS draining public roads will be adopted by the Highway Authority. The Environment Agency is a
statutory consultee for the approval process for developments located within flood zone C1 and C2 or for
any development site occupying an area greater than 1 ha and must respond within 21 days of being
contacted about an application.

An important provision in the Flood and Water Management Act 2010 includes the removal of the
automatic right to connect to surface water sewer systems; instead connection to an existing sewer
network is conditional on the SAB approving the drainage system.

\(^{24}\) [http://www.ciria.com/suds/suds_principles.htm](http://www.ciria.com/suds/suds_principles.htm)
Drainage is a complex issue and should be considered at the earliest stage of the development process. IoACC will be producing a local SuDS Design Guide in accordance with National Standards on SuDS, to advise on what the expectations are for the design of drainage, which is expected to be out for consultation in 2013 after national guidance has been provided following the enactment of the SAB.

Following construction of the SuDS scheme under agreement, there will be a maintenance period to ensure the SuDS functions to its design specifications before adoption takes place. Once adoption has taken place, maintenance will be the responsibility of IoACC and will be done either by itself or by a contracted provider.

*Note: IoACC are waiting for additional information and guidance from Welsh Government regarding the adoption of SuDS therefore the information above is subject to change.*
7.2.3 The Council's Emergency Planning Role

Isle of Anglesey County Council has a responsibility for planning for and responding to flooding from local sources i.e. flooding from surface water, groundwater and ordinary watercourses and also a responsibility for the co-ordination and preparation of off-site reservoir emergency plans in co-operation with other local resilience forum partners. A planned response will mitigate the effects of an emergency incident and assist the community in the return to normality.

The Emergency Planning Unit works with colleagues to ensure that the Council provides the following services:

- Developing and reviewing emergency planning arrangements;
- To produce and maintain the Council's emergency response and management plans;
- Training and exercise events for staff with emergency responsibilities;
- Working with neighbouring local authorities, emergency services, utilities, voluntary agencies and any other appropriate organisation to ensure a strategic approach to emergency planning; and
- Writing joint agency plans to cope with known natural and man-made hazards.
7.2.4 **The Council's Flood Response Role**

The precise nature and extent of the response provided by the Local Authority will depend upon available resources and local arrangements but it may include action from a wide cross section of Council services including Highways, Social Services, Environment, Waste and Communications to carry out the following:

- Flood alleviation such as clearance of blocked culverts, dealing with flooded roads and diversions, and may include other assistance such as issuing of sandbags;
- Emergency care including feeding, accommodation and welfare for those evacuated from their homes or those affected by flooding but remaining in their homes;
- Emergency transport for personnel and equipment;
- Co-ordinate the responses of voluntary agencies and overall management of welfare arrangements;
- Lead on the recovery phase of the affected community and environment following a flooding incident;
- Provide emergency environmental health advice for action relating to environmental problems caused by flooding; and
- Provide information services for the media, to the public, and the relatives of evacuees etc.

During a major event the Emergency Planning Unit would assist with co-ordinating the local authority’s overall response to any emergency affecting the county.

A North Wales Resilience Forum (Multi Agency) Flood Plan for North Wales has been developed to improve the multi-agency response and co-ordination of resources during a flooding incident. The plan sets out the generic roles and responsibilities for each agency involved.
7.2.5 As a Planning Authority

The functions of IoACC Planning Authority in relation to flood risk is to produce and monitor a Local Development Plan (LDP) and process and determine planning applications, which includes the consideration of flood risk assessments.

The LDP is supported by a number of Background Papers and Supplementary Planning Guidance (SPG) documents. For all land allocations in the LDP, statutory bodies are consulted. The comments of EAW and the Council’s Environment and Technical Service in relation to flood risk are considered in the assessment of development and whether sites are allocated or not.

The Planning Authority affects Flood Risk Management in the following key ways:

- Writing policy in the LDP regarding SuDS issues;
- Providing input into Environment and Technical Service plans such as Shoreline Management Plan;
- Identify links and potential land use allocations as part of the LDP considering flood risk;
- Assessing flood elevation works; and
- Responding to WG or EAW on consultations involving flooding issues as a service.

In the future, the Planning Authority will work alongside the SuDS Approval Body to assess planning applications and complementary drainage applications.

When considering flooding issues in the preparation of Local Plans, the Planning Authority needs to do the following:

- Produce a Strategic Flood Risk Assessment (SFRA). This should consider not just fluvial and coastal flooding but also local flood risk issues. Where Critical Drainage Areas have been identified these will need to be included;
- Develop a LDP that carefully considers flood and coastal erosion risks. This is a statutory planning document which can be used to control inappropriate development in the floodplain. Consequently the LDP should support the SFRA, the Preliminary Flood Risk Assessment and Surface Water Management Plan (where applicable). This should allow the LDP to assess and record the flood risks for new developments and steer development to areas of lowest flood risk. Equally there is requirement to assess risks from coastal erosion and permanent tidal inundation and where appropriate designate coastal risk management zones where permanent development will not be permitted;
- When assessing development, Planning Authorities should consider the following aspects: (a) the risk of all forms of flooding in the area, flood protection measures and the impact of climate change; (b) the justification for the location of development in a flood risk area; (c) the consequences of flooding in terms of risk to life, damage to property, safe access and agress, and disruption; (d) the form and layout of development, use of appropriate SuDS and water efficiency measures such as rainwater harvesting or use of local land drainage water where practicable;
Consider the allocation of land for development in areas of lowest probability of flooding through embedding the sequential approach referred to in TAN 14 – Coastal Planning, and TAN 15 - Development and Flood Risk into the LDP;

- Safeguard land for critical infrastructure; and

- Develop action plans, where necessary, to support sustainable spatial planning and ensure all plans are integrated and firmly linked to local strategies.

When the SuDS Approval Body comes into force, the Planning Authority will:

- Alert developers and land owners at the pre-application stage of the need to consult with the SuDS Approval Body about drainage issues on the site;

- Send drainage applications (submitted with the planning application) to the SuDS Approval Body (subject to change depending on WG application system proposals);

- Provide local guidance for the assessment of drainage matters in planning applications; and

- Advise Developers to discuss with the Lead Local Flood Authority whether land drainage consent is required for alterations or new structures within an ordinary water course.
7.3 Responsibilities of Dŵr Cymru – Welsh Water

Dŵr Cymru – Welsh Water (DCWW) is the only company serving Anglesey providing both water supply and wastewater services. DCWW is responsible not only for the provision of water, but also for making appropriate arrangements for the drainage of foul water, the treatment of waste, surface water sewers and combined sewers. They have primary responsibility for floods from water and sewerage systems, which can include sewer flooding, burst pipes or water mains or floods caused by system failures.

The Flood and Water Management Act 2010 places a number of statutory duties on water and sewerage companies including:

- A duty to act consistently with the National Strategy;
- A duty to have regard to the content of the relevant Local Strategy; and
- A duty to co-operate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions.

Water and sewerage companies often hold valuable information which could greatly aid the understanding of flood risks faced by communities across Wales.
7.3.1 **Transfer of Responsibilities**

The Water Industry (Schemes for Adoption of Private Sewers) 2011 Regulations facilitated the transfer of private sewers, lateral drains and pumping stations to Water and Sewerage Companies in England and Wales. The transfer is illustrated in Figure 7.7 below and shows a transfer of responsibilities from home owners to DCWW. Before July 2011 home owners were responsible for their private drains up to the point where they join the public sewer and where a pipe served several properties the home owners were jointly and equally responsible. Following July 2011 DCWW became responsible for the part that is outside the home owner’s property known as lateral drains as well as the public sewer.

![Diagram of transfer of responsibilities]

**Figure 7.7:** The transfer of responsibilities from homeowners to DCWW

7.3.2 **Flood Risk Management**

Water and sewage companies have the following responsibilities around flood risk management:

- Respond to flooding incidents involving their assets;
- Produce reports of the flood incidents;
- Maintenance of a register of properties at risk of flooding due to a hydraulic overload in the sewerage network (DG5 register);
- Undertake capacity improvements to alleviate sewer flooding problems on the DG5 register;
- Provide, maintain and operate systems of public sewers and works for the purpose of effectually draining an area;
- May be subject to scrutiny from lead local flood authorities’ democratic processes;
- Have a duty for the adoption of private sewers; and
- Statutory consultee to the SAB (when enforced) when the drainage system is proposed to communicate with the public sewer.

### 7.3.3 Reducing Sewer Flooding

DCWW is responsible for flooding from their foul and surface water sewers, and from burst water mains.

When sewage escapes from a pipe, through a manhole, drain or by backing up in the toilet this is known as sewage flooding. Sewage flooding can be caused by; blockages in the sewer pipe caused by root growth, a collapse or misuse, or vandalism; equipment failure, for example the pumps at a pumping station not operating due to electrical or other problems; and when the sewer is overloaded either because it is too small to deal with the amount of sewage in it (possibly because of increased development in the area) or during storm conditions when too much rainwater from roads and fields ends up in the sewer. The cause may be some distance away from where the flooding happens.

The majority of flooding is reported into the DCWW call centre on 0800 085 3968 (The lines are open 24 hours a day, 7 days a week). The call centre agent will check that the flooding incident involves their assets. If it does not they will redirect the call if necessary. If assets are identified a job is raised and dispatched to field teams. The advisors will tell you when you can expect the field team to arrive at your property. This will usually be within 3 hours. An initial clean up will be undertaken and they will return later if necessary. Priority is given to frequent internal flooding problems where a cost beneficial and sustainable solution is available.

If flooding is present or evidence of flooding present details will be recorded on the ‘DG5 Form’ and investigated as appropriate which may lead to recording on the DG5 Register. The DG5 register is a register of properties and areas that have suffered or are likely to suffer flooding from public foul, combined or surface water sewers due to overloading of the sewerage system. Investment in the alleviation of sewer flooding is closely allied to the DG5 register.

### 7.3.4 System of public sewers and works

An essential flood risk management duty is defined under Section 94 of the Water Industry Act 1991, which states that Water and Sewerage Companies have a duty to provide, maintain and operate systems of public sewers and works for the purpose of effectually draining their area. They also have a duty under the same Act relating to premises for ‘domestic sewerage purposes’. In terms of wastewater this is taken to mean the ordinary contents of lavatories and water which has been used for bathing, washing and cooking purposes and for surface water removal from yards and roofs. However, there is no legal duty or responsibility relating to highway drainage, land drainage and watercourses, with the exception that Water and Sewerage Companies can accept highway drainage by agreement with a highway authority.
Currently, foul and surface water drainage from new developments can be connected to public sewers\textsuperscript{25} and Water and Sewerage Company has no powers to prevent new connections to its network even if it believes it could cause flooding to customers. For this reason DCWW comments on planning applications even though they are not a statutory consultee.

However, this will be amended once the relevant section\textsuperscript{26} of the Flood and Water Management Act is commenced, when the connection to a public sewer will be permitted only after the drainage Strategy associated with a new development is approved by the SuDS Approving Body (to which the DCWW will be a statutory consultee). This will only apply to surface water; the 'right to connect' will still apply to foul water.

7.3.5 Reservoir Undertaker

DCWW owns many reservoirs in Wales and as such they are responsible for their maintenance as a reservoir undertaker. They will also be affected by the change to the Reservoirs Act 1975 which has been amended to state the following; all undertakers with reservoirs over 10,000 m$^3$ (above the natural level of the surrounding land) must register their reservoirs with the Environment Agency as they are subject to regulation and all undertakers must report any flood incidents.

\textsuperscript{25} Section 106 of the Water Industry Act
\textsuperscript{26} Section 16 of Schedule 3, Flood & Water Management Act 2010
7.4 Responsibilities of IoACC Highways Authority

As well as leading on delivering the requirements of the Act, the IoACC Highways & Waste Management Services Department is responsible for the network of non-trunk roads on the island. The Welsh Government is responsible for trunk roads and motorways in Wales, on Anglesey these are maintained by the UK Highways A55 Ltd on behalf of the Welsh Government.

All Highways Authorities are Risk Management Authorities according to the FWMA and must adhere to all the responsibilities of risk management authorities; a duty to co-operate with other risk management authorities and authority to take on Flood & Coastal Erosion Risk Management functions from another risk management authority when agreed by both sides.

In addition to their responsibility as a risk management authority, highways authorities also have further responsibilities:

7.4.1 Responsibility to Maintain the Highways

Under the Highways Act 1980, the Highway Authority has a duty to maintain the Highway and as part of this duty, roads are regularly inspected and maintained. This includes ensuring that Highway drainage systems are clear and that, where reasonably practical, obstructions caused by flooding on the highway are cleared. Arisings, which are free of pollutants, as a result of ditch maintenance works will be deposited on nearby highway verges. This reduces the need for costly waste transfer and pressure on landfill sites. Therefore, allowing the Authority to maximise the ditching works programme with the available budget and in turn reducing the risks of flooding to highways and properties.

7.4.2 Adoption of SuDS

Highways Authorities currently have the power to adopt SuDS that serve the highway through Section 38 of the Highways Act but are under no obligation to do so. Under the Flood and Water Management Act, highways authorities will be required to adopt any SuDS approved by the SuDS Approval Body which exist within the highways boundary and serve the highway and estate roads.

7.4.3 Powers to Deliver Works

The Highway Authority can deliver works that they consider necessary to protect the highway from flooding. These can be on the highway or on land which has been acquired by the highway authority in the exercise of highway and acquisition powers for that purpose. Highway Authorities may divert parts of a watercourse or carry out any other works on any form of watercourse if it is necessary for the construction, improvement or alteration of the highway or provides a new means of access to any premises from a highway.

7.4.4 Response in an Emergency Flooding Event

In the event of an emergency or major incident Anglesey’s Highways Authority will aim to provide:
- The means to transport people through it’s contacts with local bus, coach and taxi operators and the in house fleet to assist with evacuations and helping uninjured survivors at the scene of a major incident to travel home or to a place of safety; and

- Assistance in management of the transportation network to restore the flow of traffic in the event of an evacuation or away from the area of an incident. This includes providing equipment such as barriers, cones and signs and setting up and marking route diversions (service provided by Works Contractors in conjunction with the Police) and changing traffic signal controls to improve the flow of traffic.
7.5 North and Mid Wales Trunk Road Agency

Trunk roads in Anglesey are maintained by the North and Mid Wales Trunk Road Agency (NMWTRA) on behalf of the Welsh Government. The Trunk Road network in North and Mid-Wales consists of approximately 1175 km (730 miles) of trunk road covering 8 Welsh Local Authorities – Ceredigion, Conwy, Denbighshire, Flintshire, Gwynedd, Isle of Anglesey, Powys and Wrexham. NMWTRA must ensure that:

- Road projects do not increase flood risk; and
- Road discharges do not pollute receiving water bodies.

The NMWTRA have responsibility for the drainage on the following trunk road in Anglesey:

- A55 Britannia Bridge to Holyhead.

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http://www.highways.gov.uk/knowledge/18542.aspx
7.6 Responsibilities of Anglesey’s Citizens (Businesses, Landowners and property owners)

It is the responsibility of property owners and businesses to protect their property from flooding. While in some circumstances organisations or property owners may be liable due to neglect of their own responsibilities, there will be many occasions when flooding occurs despite all parties meeting their responsibilities. Consequently it is important that householders, whose homes are at risk of flooding, take steps to ensure that their house is protected. There are a number of measures which can be taken to make your property more resistant (stop water entering) and resilient (better prepared to recover) to flooding. These include:

- Check whether your household is at risk from flooding from the river, coast or local flood sources. All households in Flood Zones C1 and C2 (areas at risk from coastal or main river flooding) should have been contacted by the EAW notifying them of this and, unless they have chosen to opt-out; will receive flood warnings when the risk of river or coastal flooding is high. Go to Flood Map at http://www.environment-agency.gov.uk;

- Ensure that preparations have been made for the event of a flood. These include registering for the EA Floodline Warnings Direct service if flooding from rivers may be involved, keeping a ‘grab bag’ of essential items ready and having a plan to turn off electricity, gas and water supplies;

- Take resistant measures to ensure that their house is protected from flooding, either through permanent measures such as sealants in the wall or temporary measures such as floodsax or flood guards. See the National Flood Forum’s independent Blue Pages directory: http://www.bluepages.org.uk/;

- The combined effect of many people paving over their front gardens can increase the amount of surface runoff which adds to the risk of flooding. See the ‘Guidance on the permeable surfacing of front gardens’ leaflet.

- Take measures to make sure the house is resilient to flooding so that if it does occur it does not cause too much damage;

- Where possible, take out flood insurance;

- If your property is served by separate surface water and foul sewers, you have a responsibility to fix any pipes which may be wrongly connected. For example, dirty water from sinks, baths, showers, appliances and the toilet should go to the foul sewer to be treated, otherwise watercourses can be polluted. Gutters and gulleys collecting rainwater should connect to the surface water sewer – if these are wrongly connected to the foul sewer then flooding from the foul sewer can result. See the leaflet ‘Is your home connected right’.

- If you own land adjoining a watercourse then you are a riparian owner and you have a responsibility to pass on flow without obstruction or pollution, including maintaining the banks of the channel and any vegetation so they remain clear of debris. See the Environment Agency leaflet ‘Living on the Edge’; and

- Report a flood incident at www.Anglesey.gov.uk to help build evidence for action to be taken.
The Environment Agency provides information on what to do to prepare a household for emergencies. This includes how to make a flood plan which will help you decide what practical actions to take before and after a flood. Go to: [http://www.environment-agency.gov.uk/homeandleisure/floods/31624.aspx](http://www.environment-agency.gov.uk/homeandleisure/floods/31624.aspx).

The National Flood Forum is a national charity dedicated to supporting and representing communities and individuals at risk of flooding. As detailed in the following link: [http://nationalfloodforum.org.uk/](http://nationalfloodforum.org.uk/).

The National Flood Forum has several roles:

- Help people to prepare for flooding in order to prevent it or mitigate its impacts;
- Help people to recover their lives once they have been flooded; and
- Campaign on behalf of flood risk communities and working with government and agencies to ensure that they develop a community perspective.

### 7.6.1 Riparian Ownership

Landowners, householders and businesses whose property is adjacent to a river or stream or ditch are likely to be riparian owners with responsibilities. The riparian owner is likely to own the land up to the centre of the watercourse which can be confirmed by The Land Registry.

Riparian owners have a right to protect their property from flooding and erosion but in most case will need to discuss the method of doing this with the Environment Agency. They also have responsibility for maintaining the bed and banks of the watercourse and ensuring there is no obstruction, diversion or pollution to the flow of the watercourse. Full details can be found in the Environment Agency's document *Living on the Edge: A guide to your rights and responsibilities of riverside ownership*.

### 7.6.2 Utility and Infrastructure Providers

Within Anglesey most of the defence assets are the responsibility of IoACC, Stena Sea Ports, Network Rail or private land owners. Utility and infrastructure providers such as Network Rail, energy companies and telecommunication companies have a crucial role to play in flood risk management as their assets can be important consideration in planning for flooding.

Moreover they may have assets such as culverts, information about which needs to be shared with flood risk management authorities. They already maintain plans for the future development and maintenance of the services they provide and it is important that they factor in flood risk management issues into this planning process. This will ensure that their assets and systems are resilient to flood and coastal risks and that the required level of service can be maintained in the event of an incident.

### 7.6.3 Reservoir Undertaker

Citizens who own or operate a reservoir have ultimate responsibility for the safety and the maintenance as a reservoir undertaker. Under the FWMA; all undertakers with reservoirs over 10,000 m³ must register their reservoirs with the EAW and all undertakers must report any flood incidents. The reservoir owner is responsible for producing on-site emergency plans which detail how reservoir owners will respond to a potential or real reservoir failure. All undertakers must prepare a reservoir flood plan. It is good practice for all reservoirs to have on-site plans and all reservoir owners are recommended to prepare one.
8. Local Objectives and Measures

The following chapters of this report will set out the primary objectives for IoACC for managing flood and coastal erosion risk in Anglesey over the life of the Local Flood Risk Management Strategy. Potential measures will be proposed to meet these objectives and research will be done into the variety of funding that may be available for the measures to be implemented.

Under the terms of the FWMA one of the requirements of the Local Flood Risk Management Strategy is the stipulation of the costs and benefits of any proposed measures. At this stage in the Strategy process, it is difficult to ascertain and quantify costs and benefits without knowing the exact scope of any required works. Secondly, quantification of benefits is difficult without knowing the accurate extent to which measures are able to reduce flood risk. It is felt that costs and benefits of detailed measures are better placed within the Annual Action Plans and/or Flood Risk Management Plans.

The objectives should be inline with wider government policy and include a realistic timetable for delivery, which could include phasing over multiple flood risk management Strategy cycles. It is important that the process, measures and actions to achieve the objectives are pragmatic and supported by all departments and both partners and stakeholders. There should be demonstrable links between objectives and their contribution to tackling local priorities, in areas potentially vulnerable to flooding.

8.1 Anglesey Council’s Strategic Objectives

The objectives should be inline with the guiding principles of the Welsh Governments National Strategy and Local Strategy Guidance and wider government policy. There should be demonstrable links between objectives and their contribution to tackling local priorities, in areas potentially vulnerable to flooding. The objectives will set the vision for how the council and its partners intend to manage local flood risk.

Local Strategy guidance states that high level strategic objectives should be developed around the reduction of potential adverse consequences of flooding for human health, the environment, cultural heritage, economic activity. By adopting this approach, the objectives will be consistent with those required under the Flood Risk Regulations 2009 and assist in ensuring that this common approach is maintained across Wales.

It also suggests that the more detailed objectives provide opportunities for LLFA to capture and record both long and short term objectives including and therefore not forgetting the work that is already being completed such as routine maintenance.

The EA has suggested that the LLFA should consider objectives under each of the three key headings; social, economic and environmental.

IoACC’s objectives for managing flood and coastal erosion risk in Anglesey are listed overleaf:

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28 National Strategy for Flood and Coastal Erosion Risk Management in Wales, November 2011
29 Local Flood Risk Management Strategies, Local Strategy, November 2011
Ten Objectives for Isle of Anglesey County Council

1. To improve the understanding of local flood (surface water, groundwater and ordinary watercourses) and coastal risks;

2. Increasing individual and community awareness and preparedness for flood and coastal erosion events and the impacts of climate change on flood risk;

3. To work together (both FRMA, stakeholders and public) to reduce flood and coastal risks, sharing data and resources to the greatest benefit;

4. To reduce the impact and consequences for individuals, communities, businesses and the environment from flooding and coastal erosion;

5. To ensure that planning decisions are properly informed by flooding issues and the impact future planning may have on flood risk management and long term developments;

6. Take a sustainable approach to flood risk management balancing economic, environmental and social benefits;

7. Increase approaches that work sympathetically with natural processes;

8. Ensure the development of skills required to implement effective and innovative flood risk management measures;

9. Encourage maintenance of privately owned flood defences and ordinary watercourses, and minimise unnecessary constrictions in watercourses; and

10. Work together with other Flood Risk Authorities to reduce the loading of combined sewers.

IoACC has undertaken an assessment in the form of a compatibility matrix to make certain that these chosen objectives fit inline with National Strategy objectives, Local Strategy guidance and EA key headings. The matrix also states which objectives are long and short term objectives and can be found in Table 8.1 on the following page:
## Anglesey Local Flood Risk Management Strategy

<table>
<thead>
<tr>
<th>Objective number</th>
<th>Isle of Anglesey County Council LFRMS Objective</th>
<th>Four Overarching National Strategy Objectives</th>
<th>EA Key Headings</th>
<th>Long (L) or Short (S) term</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Reducing consequences</td>
<td>Raising awareness &amp; engaging people</td>
<td>Providing an effective &amp; sustained response</td>
</tr>
<tr>
<td>1</td>
<td>Improve understanding</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Increase awareness &amp; preparedness</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Working together</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Reduce impact and consequences</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Inform planning decisions</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Sustainable approach to FRM</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>7</td>
<td>Natural processes</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>8</td>
<td>Development of skills</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9</td>
<td>Encourage maintenance of privately owned flood defences and ordinary watercourses</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>10</td>
<td>Reduce the loading of combined sewers</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 8.1: Matrix to demonstrate the links between IOACC Local Strategy Objectives, National Strategy Objectives, and EA Key Headings

- Short term objective – 0 - 20 years
- Long term objective – 20 - 100 years
8.2 Potential Measures

A measure can be defined as an activity, which will be undertaken to manage risk and achieve the agreed objectives. Local Strategy guidance states that a wide range of measures should be considered for the short (0-20 years), medium (20-50 years) and longer term (50-100 years). These should include both structural and non-structural activities; examples of these are included in Table 8.2 below:

<table>
<thead>
<tr>
<th>Non-structural Measures</th>
<th>Structural Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Flood Warnings Systems;</td>
<td>- Flood walls;</td>
</tr>
<tr>
<td>- Public awareness and preparedness workshops;</td>
<td>- Flood embankments;</td>
</tr>
<tr>
<td>- Community engagement;</td>
<td>- Trash screens;</td>
</tr>
<tr>
<td>- Surface Water Management Plans.</td>
<td>- Demountable flood barriers;</td>
</tr>
<tr>
<td></td>
<td>- Flood storage features.</td>
</tr>
</tbody>
</table>

Table 8.2: Examples of structural and non-structural activities

Measures which will achieve multiple benefits, such as water quality, biodiversity and amenity benefits are encouraged and should be promoted wherever possible.

The Local Strategy guidance also specifies that all LLFA’s should consider measures under the following high level themes:

- Development planning and adaptation (encompassing both new and adaptations to existing developments / landscapes);
- Flood forecasting, warning and response;
- Land, cultural and environmental management;
- Asset management and maintenance;
- Studies assessments and plans;
- High level awareness and engagement (to increase individual and community resilience); and
- Monitoring (of the local flood risk issues).

IoACC would like to deliver the following measures for managing flood and coastal erosion risk in Anglesey County subject to funding from Welsh Government.
## Anglesey Local Flood Risk Management Strategy

### 1. To improve the understanding of local flood (surface water, groundwater and ordinary watercourses) and coastal risks

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>To improve the understanding of local flood (surface water, groundwater and ordinary watercourses) and coastal risks</strong></td>
</tr>
<tr>
<td>1.1</td>
<td>Record all flooding incidents and where appropriate carry out flooding investigations;</td>
</tr>
<tr>
<td>1.2</td>
<td>Record all appropriate structures/assets on watercourses so that ownership and responsibility can</td>
</tr>
<tr>
<td></td>
<td>be identified in the event of a problem with flooding;</td>
</tr>
<tr>
<td>1.3</td>
<td>Develop a consistent approach to designation of flooding/drainage structures;</td>
</tr>
<tr>
<td>1.4</td>
<td>Update the Anglesey Flood Risk Assessment;</td>
</tr>
<tr>
<td>1.5</td>
<td>Identify and assess the condition of existing drainage assets within the County, to prioritise capital investment; and</td>
</tr>
<tr>
<td>1.6</td>
<td>Develop a county wide map based record of flood risk assets, Flood Investigation Reports, historical flooding and areas at risk of flooding to allow a proactive risk management approach to be taken by the flood authority.</td>
</tr>
</tbody>
</table>

### 2. Increasing individual and community awareness and preparedness for flood and coastal erosion events and the impacts of climate change on flood risk

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td><strong>Increasing individual and community awareness and preparedness for flood and coastal erosion events and the impacts of climate change on flood risk</strong></td>
</tr>
<tr>
<td>2.1</td>
<td>Raise public awareness of the impacts of climate change on flooding;</td>
</tr>
<tr>
<td>2.2</td>
<td>Publish a public awareness strategy (Workshops, public awareness events, publish information on</td>
</tr>
<tr>
<td></td>
<td>the Council Website, adverts in local press) and communicate it;</td>
</tr>
<tr>
<td>2.3</td>
<td>Establish a flood incidents team to deal with non-emergency flood incidents;</td>
</tr>
<tr>
<td>2.4</td>
<td>To collaborate with statutory bodies to promote the existing flood warning service (EAW) and their</td>
</tr>
<tr>
<td></td>
<td>proposed flooding campaigns;</td>
</tr>
<tr>
<td>2.5</td>
<td>Collaborate with other Flood Risk Authorities to create an integrated county wide real time hydraulic and flood alert map (long term);</td>
</tr>
<tr>
<td>2.6</td>
<td>Make the public aware of available flood prevention and mitigation tasks (resistance and resilience)</td>
</tr>
<tr>
<td></td>
<td>to protect their property and assets; and</td>
</tr>
<tr>
<td>2.7</td>
<td>Target areas of historical flooding (or at high probability of flooding) to increase awareness of</td>
</tr>
<tr>
<td></td>
<td>emergency procedures in the event of a flood.</td>
</tr>
</tbody>
</table>
### 3 To work together (both FRMA’s, stakeholders and public) to reduce flood and coastal risks, and share data and resources to the greatest benefit

3.1 Identify responsibilities of the riparian owners of managing their assets, through public engagement;
3.2 Continue to meet with the North Wales LFRMA’s and Coordination Group to share knowledge, data and lessons learnt;
3.3 Develop an effective communication system to ensure collaborative working and data sharing; and
3.4 Undertake stakeholder engagement, to identify responsibilities of flood risk partners.

### 4 To reduce the impact and consequences for individuals, communities, businesses and the environment from flooding and coastal erosion

4.1 Identify vulnerable groups within the community, and prepare action plans in the event of flooding;
4.2 Identify areas at greatest risk of flooding, and develop a capital cost investment programme to reduce the frequency of flooding;
4.3 Educate general public on options for protecting their properties through flood prevention options and resistance and resilience measures;
4.4 Establish a post incident support team to assist following a flood event;
4.5 Improve the capacity of existing drainage systems by targeted maintenance; and
4.6 Take advantage of other potential funding sources, internal and external.

### 5 To ensure that planning decisions are properly informed by flooding issues and the impact future planning may have on flood risk management and long term developments

5.1 Develop clear guidance for the Planning Department when assessing planning applications;
5.2 Develop a process with the Planning Department to create clear advise and direction to developers on FRMS and drainage (including incorporation of SuDS into new developments);
5.3 Establish a SuDS Approval Body (SAB);
5.4 Keep the Planning Department informed and up-to-date with flood areas in the County; and
5.5 Develop policies for effective land use management and enhance development control procedures where appropriate.
### 6 Take a sustainable approach to flood risk management balancing economic, environmental and social benefits

- **6.1** Ensure the environmental consequences of implementing the LFRMS are considered against the technical, economic and social benefits;
- **6.2** Consider the use of attenuation through wetlands to increase the length of flow durations, store water and provide amenity and ecological benefits; and
- **6.3** Consider the use of bio-retention areas to remove sediment and pollutants.

### 7 Increase approaches that work sympathetically with natural processes

- **7.1** Adopt natural flood-risk management techniques including SuDS;
- **7.2** Explore new and innovative technologies for flood defence and flood management;
- **7.3** Where possible incorporate multiple benefits such as water quality, biodiversity and amenity benefits; and
- **7.4** Develop and implement a non-culverting policy.

### 8 Ensure the development of skills required to implement effective and innovative flood risk management tasks

- **8.1** Provide appropriate staffing levels and develop staff expertise to deliver the requirements of the act;
- **8.2** Invest in appropriate software and hardware;
- **8.3** Outsource specialist skills to deliver specific projects; and
- **8.4** Provide support, training and networks of staff across the risk management authorities.

### 9 Encouraging maintenance of privately owned flood defences and ordinary watercourses, and minimise unnecessary constrictions in watercourses

- **9.1** Provide guidance and administer a process for consenting of new structures and maintenance of existing structures on watercourses (this process will discourage further blocking of watercourses wherever possible);
- **9.2** Ensure riparian owners are aware of their duties to keep watercourses flowing freely; and
- **9.3** Provide support and guidance to people who wish to maintain or improve flood defences on private land.
10. Work together with other Flood Risk Authorities to reduce the loading of combined sewers

10.1 Reduce volumes and rates of flow entering the sewers;
10.2 Keep up to date with new and innovative technologies; and
10.3 Upgrade the existing capacity of Anglesey's drainage system.

8.3 Compatibility Matrix

IoACC has undertaken an assessment in the form of a compatibility matrix to make certain that these potential measures fit inline with Local Strategy guidance and high level themes. The matrix also states which measures are structural and non-structural and whether they are long, medium and short term and can be found in Table 8.3 on the following page:
# Anglesey Local Flood Risk Management Strategy

## High Level Themes

<table>
<thead>
<tr>
<th>Measure Reference Number</th>
<th>LFRMS Measures</th>
<th>Development planning &amp; adaptation</th>
<th>Flood forecasting, warning &amp; response</th>
<th>Land, cultural &amp; environmental management</th>
<th>Asset management &amp; maintenance</th>
<th>Studies, assessment &amp; plans</th>
<th>High level awareness &amp; engagement</th>
<th>Monitoring</th>
<th>Long (L), Medium (M), Short (S) term</th>
<th>Structural (S), Non-structural (NS)</th>
<th>Status - Ongoing (O), Pending (P), Aspirational (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Record all flooding incidents &amp; carry out flooding investigations</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>NS</td>
<td>O</td>
</tr>
<tr>
<td>1.2 Record all appropriate structures/assets</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>NS</td>
<td>O</td>
</tr>
<tr>
<td>1.3 Consistent approach to designation of structures</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>S</td>
<td>NS</td>
<td>P</td>
</tr>
<tr>
<td>1.4 Update the Anglesey Flood Risk Assessment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>S</td>
<td>NS</td>
<td>O</td>
</tr>
<tr>
<td>1.5 Identify and assess the condition of drainage assets/structures</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>L</td>
<td>NS</td>
<td>A</td>
</tr>
<tr>
<td>1.6 County wide flooding and drainage asset model</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
</tr>
<tr>
<td>2.1 Raise public awareness</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
</tr>
<tr>
<td>2.2 Publish a public awareness strategy and communicate it</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
</tr>
<tr>
<td>2.3 Establish a flood incidents team for non-emergency flood incidents</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
</tr>
<tr>
<td>2.4 Collaborate with statutory bodies</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
</tr>
<tr>
<td>2.5 Integrated county wide real time hydraulic and flood alert map</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>M</td>
<td>NS / S</td>
</tr>
<tr>
<td>2.6 Public awareness of available flood prevention and mitigation tasks</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
</tr>
<tr>
<td>2.7 Target areas of historical flooding</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
</tr>
<tr>
<td>3.1 Identify responsibilities of the riparian owners</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Measure Reference Number</td>
<td>LFRMS Measures</td>
<td>High Level Themes</td>
<td>Status - Ongoing (O), Pending (P), Aspirational (A)</td>
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<td></td>
<td>Development planning &amp; adaptation</td>
<td>Flood forecasting, warning &amp; response</td>
<td>Land, cultural &amp; environmental management</td>
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<td>Studies, assessment &amp; plans</td>
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<td>Monitoring</td>
<td>Long (L), Medium (M), Short (S) term</td>
<td>Structural (S), Non-structural (NS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Continue to meet with North Wales FRMA’s &amp; Coordination Group</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>S</td>
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</tr>
<tr>
<td>3.3</td>
<td>Effective communication plan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
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<td>A</td>
</tr>
<tr>
<td>3.4</td>
<td>Stakeholder engagement, to identify responsibilities of flood risk partners</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
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<td>O</td>
</tr>
<tr>
<td>4.1</td>
<td>Identify vulnerable groups &amp; prepare action plans</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>S</td>
<td>NS</td>
<td>A</td>
</tr>
<tr>
<td>4.2</td>
<td>Identify areas at greatest risk of flooding, develop capital cost investment programme</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<td>NS</td>
<td>A</td>
</tr>
<tr>
<td>4.3</td>
<td>Educate general public on options for protecting their properties</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>S</td>
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<td>O</td>
</tr>
<tr>
<td>4.4</td>
<td>Assist and provide support following a flood event</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>S</td>
<td>NS</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>Improve the capacity of existing drainage</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>S / M</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>4.6</td>
<td>Identify future funding sources</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
<td>O</td>
</tr>
<tr>
<td>5.1</td>
<td>Guidance for Planning Department</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>S</td>
<td>NS</td>
<td>A</td>
</tr>
<tr>
<td>5.2</td>
<td>Process to create clear advise and direction to developers</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<td>A</td>
</tr>
<tr>
<td>5.3</td>
<td>Establish a SuDS Approval Body</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<td>NS</td>
<td>P</td>
</tr>
<tr>
<td>5.4</td>
<td>Keep the Planning Department informed and up-to-date with flood areas</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>S</td>
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</tr>
</tbody>
</table>
## Anglesey Local Flood Risk Management Strategy

<table>
<thead>
<tr>
<th>Measure Reference Number</th>
<th>LFRMS Measures</th>
<th>Development planning &amp; adaptation</th>
<th>Flood forecasting, warning &amp; response</th>
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<th>Monitoring</th>
<th>Long (L), Medium (M), Short (S) term</th>
<th>Status - Ongoing (O), Pending (P), Aspirational (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 Policies for effective land use management</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<td>S</td>
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<td>A</td>
</tr>
<tr>
<td>6.1 Ensure the consequences of implementing LFRMS are considered</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<td>A</td>
</tr>
<tr>
<td>6.2 Adopt attenuation to provide amenity and ecological benefits</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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</tr>
<tr>
<td>6.3 Use bio-retention areas to remove sediment</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>S</td>
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<td>O</td>
</tr>
<tr>
<td>7.1 Adopt natural flood-risk management techniques including SuDS</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
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<td>NS / S</td>
<td>P</td>
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<tr>
<td>7.2 Explore new and innovative technologies for flood management</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<tr>
<td>7.3 Where possible incorporate multiple benefits</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<tr>
<td>7.4 Develop and implement a non-culverting policy</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<tr>
<td>8.1 Provide enough staff to deliver the requirements of the act</td>
<td>-</td>
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<tr>
<td>8.2 Invest in appropriate software and hardware</td>
<td>-</td>
<td>✓</td>
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<td>8.3 Outsource specialist skills to deliver specific projects</td>
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<tr>
<td>8.4 Staff support, training and networks</td>
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<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
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<tr>
<td>9.1 Provide guidance on consenting of new structures</td>
<td>-</td>
<td>-</td>
<td>✓</td>
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<tr>
<td>9.2 Ensure riparian owners are aware of their duties</td>
<td>-</td>
<td>-</td>
<td>✓</td>
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<tr>
<td>9.3 Provide support and guidance to public</td>
<td>- - ✓ - - - - -</td>
<td>S NS O</td>
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<tr>
<td>10.1 Reduce volumes of water entering the sewers</td>
<td>✓ - - - ✓ ✓ ✓ S S O</td>
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<td>10.2 Keep up to date with new technologies</td>
<td>✓ - - - - - - S NS O</td>
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<td>10.3 Upgrade existing drainage</td>
<td>✓ - - - ✓ ✓ ✓ S / M S A</td>
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Table 8.3: Matrix to demonstrate the links between IOACC Local Strategy Measures and Local Strategy Guidance, and High Level Themes

- Short term measure – 0 - 20 years
- Medium term measure – 20 - 50 years
- Long term measure – 50 - 100 years

- Ongoing – measures that are already currently carried out by IoACC and will continue
- Pending – measures that IoACC are required to do under the FWMA
- Aspirational – measures that are not required but would be beneficial to implement

✓ = measure supports the theme
- = measure is not applicable to the theme
8.4 Adopt Natural Flood Risk Management Techniques

The EA has produced the first national report of how natural processes can help manage flood risk in England and Wales; ‘Greater working with natural processes in flood and coastal erosion risk management, January 2012’ which is in response to the Pitt Review recommendation 27\textsuperscript{30}. The definition of ‘working with natural processes’ taken from this report is shown below:

‘Working with natural processes means taking action to manage flood and coastal erosion risk by protecting, restoring and emulating the natural regulating function of catchments, rivers, floodplains and coasts. This could, for example, involve using farmland to temporarily store flood water, re-instating washlands and wetlands to store flood water away from high risk areas or allowing cliffs to erode to provide sediment down drift.’

In the context of Flood and Coastal Erosion Risk Management, working with natural processes often means slowing down the flow of water (e.g. by re-establishing flood plains that hold flood waters) or speeding up the flow of water (e.g. by removing unnatural obstructions), to prevent flood waters from causing harm. Such techniques protect, restore or emulate natural processes which regulate flooding and erosion and, in doing so, may provide other ecosystem benefits such as biodiversity, carbon storage, and improved water quality. Natural processes operate across a continuum from mitigated engineering to full naturalisation (see Figure 8.1 below).

<table>
<thead>
<tr>
<th>Hard engineering</th>
<th>Mitigated hard engineering</th>
<th>Soft engineering</th>
<th>Natural Flood-risk Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavily modified river or coastline</td>
<td>- Natural Processes</td>
<td>+</td>
<td>(Semi) natural river or coastline</td>
</tr>
</tbody>
</table>

**Example interventions**

| Flood walls, pump drainage, dry washlands (significant intervention) | Green roofs, permeable paving | Wet washlands, balancing ponds, regulated tidal exchange, swales | Managed realignment, upland grip blocking, re-meandering | Natural floodplain/coastal zone (minimal intervention) |

**Example outcomes**

| Floodplain disconnected from channel/sea, except in exceptional circumstances | Floodplain connected with channel/sea with high degree of control | Floodplain connected with channel/sea with high degree of freedom |

Figure 8.1: The Environment Agency’ conceptual model of working with natural processes.

Sustainable Drainage Systems (SuDS) reduce flood risk both at a development site and elsewhere in the catchment by replicating natural drainage processes. There are numerous varieties including detention basins (dry), retention ponds (wet), grassed swales, porous pavements, soakaways and ‘green’ roofs that

\textsuperscript{30} “Defra, the Environment Agency and Natural England should work with partners to establish a programme through Catchment Flood Management Plans and Shoreline Management Plans to achieve greater working with natural processes”
store water within a building’s own footprint. These interventions slow down and absorb surface water runoff and can create valuable habitats for wildlife while reducing flood risk to developments.

**CASE STUDY to illustrate a technique of working with natural processes for Flood & Coastal Erosion Risk Management:**

**Floodplain reconnection, Conwy Valley Flood Alleviation Scheme, North Wales**

The village of Llanrwst in the Conwy valley has suffered from significant flooding from the River Conwy over the last decade, notably in 2004 and 2005. In the past flood flow across the floodplains has been halted by an embankment known as White Barn (south), which causes water to back up until the right bank spills out into the historic centre of Llanrwst. Also, the White Barn (south) embankment failed in one place and flood water crossed the floodplain and flooded part of a small settlement (Trefriw) which lowered flood levels in Llanrwst.

By lowering the White Barn (south) embankment flood water will overtop the structure in a controlled manner at a level which will help reduce flood levels in Llanrwst. Some defences will still be need in Llanrwst but these can be lower than would otherwise be the case and the design will enable more use of demountable structures. Trefriw would be offered protection by a new flood bank. By lowering White Barn (south) this will allow the reconnection and utilisation of the floodplain. Current modelling shows that the flood bank once lowered will overtop around five times per year.

The scheme also created a wetland by excavating borrow pits for material for the embankment around Trefriw.

*White Barn (south) embankment prior to lowering. The River Conwy is to the left of the embankment which currently protects the farmland to the right from flooding. Post scheme this farmland will be expected to flood approximately five times a year*
9. Sources of Funding

Some of the measures outlined in the previous section have been core activities for the council for a number of years and processes are in place to deliver those measures. Other measures, however, relate to the new responsibilities which have recently been assigned, most of which requiring a new set of skills, experience, processes and software that may take some time to develop or acquire.

It is important that the Local Strategy sets out where the funding will come from to acquire these resources in order to implement the measures within the Strategy. Some measures will be delivered with existing council resources but others will require external funding support. Isle of Anglesey County Council must identify what funding sources are currently available to them and what actions will need to be taken to ensure that alternative funding is achievable.

Currently most funding for flooding and coastal erosion comes from Welsh Government. It is essential for the implementation of this Strategy and for all statutory duties mentioned that the funding settlement from Welsh Government to IoACC identifies an allocation to Flood Risk Management.

9.1 Current Funding Sources

At present Isle of Anglesey County Council receives funding from Welsh Government in two ways:

- A non-hypothecated grant (which can be used by the authorities for any purpose they choose in delivering the services for which they are responsible); An annual and unpredictable amount is provided through the Revenue Support Grant (RSG); and

- A hypothecated grant (which can only be used for the specific purposes for which they are provided); Flood Defence Grant-in-Aid (FDGiA) provided by bidding for Flood Alleviation Grants (FAG), on a scheme by scheme basis, under the Land Drainage Act 1991. Currently the FAG rate (money contributed from WG) for fluvial schemes is 85% and for coastal schemes its 65%. Isle of Anglesey County Council contributes the remainder to the scheme.

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>Description</th>
<th>Indicative budget in 2012/2013</th>
<th>Administered By</th>
<th>To Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood and Coastal Erosion Risk Management (FCERM) Revenue Support Grant (RSG)</td>
<td>For the 2013 / 2014 financial year onwards funding to support each LLFA will be provided through the Revenue Support Grant (RSG) system.</td>
<td>£90+ Thousand</td>
<td>Isle of Anglesey County Council</td>
<td>LLFA duties under the FWMA. Maintenance of ordinary watercourses and related assets. Maintenance of coastal erosion mitigation measures.</td>
</tr>
<tr>
<td>Flood Defence Grant-in-Aid (FDGiA)</td>
<td>Welsh government funding for Flood alleviation grants (FAG) on a scheme by scheme basis – recently revised to encourage a partnership approach to maximise match-funding, work towards</td>
<td>Unknown</td>
<td>Welsh Government</td>
<td>Medium to large capital FRM projects. FRM and coastal erosion management studies, strategies and projects.</td>
</tr>
</tbody>
</table>
### 9.1 Source of Funding

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>Description</th>
<th>Indicative budget in 2012/2013</th>
<th>Administered By</th>
<th>To Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglesey Local Flood Risk Management Strategy</td>
<td>achieving specified objectives with a requirement to evidence a reduction in flood risk to properties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Company Investment</td>
<td>Investment heavily regulated by Ofwat but opportunities for contributions to area-wide projects which help to address sewer under-capacity problems</td>
<td>Unknown</td>
<td>Dŵr Cymru Welsh Water</td>
<td>Projects which help to remove surface water from combined sewers</td>
</tr>
<tr>
<td>SAB Income</td>
<td>It is anticipated that Anglesey will receive application and inspection fees funded by developers in support of the approval and inspection of new development related SuDS. Funding of long-term maintenance of SuDS is currently unclear; although a range of solutions is available including payment of commuted sums by Developers. The long-term funding of maintenance is to form part of the Consultation with Welsh Government.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Development drainage approval and FRM issues</td>
</tr>
</tbody>
</table>

Table 9.1: IOACC’s current funding sources for Flood & Coastal Erosion Risk Management

### 9.2 Other Possible Funding Sources for the Future

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>Description</th>
<th>Indicative budget in 2012/2013</th>
<th>Administered By</th>
<th>To Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Communities Fund (delivered on behalf of the government by the Big Lottery Fund)</td>
<td>The fund is available to Local Authorities in managing and adapting to flood and coastal erosion risk, and managing pollution risks associated with the coast, where this supports local economic development. The Fund opened for bids in March 2012 but is intended to be a rolling fund with annual bidding rounds. It is expected that there will be at least two future</td>
<td>£1.45 million available for Wales</td>
<td>Big Fund</td>
<td>Projects that help coastal communities to better enable them to use their assets (physical, natural, social, economic and cultural) to promote sustainable economic growth and jobs</td>
</tr>
<tr>
<td>Source of Funding</td>
<td>Description</td>
<td>Indicative budget in 2012/2013</td>
<td>Administered By</td>
<td>To Fund</td>
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<tr>
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<td>----------------------------------------------</td>
</tr>
<tr>
<td>Section 106 contributions (Town &amp; Country Planning Act)</td>
<td>It is anticipated that IoACC will receive contributions from developers linked to specific development sites where off-site improvements to drainage infrastructure are required to make the developers proposals acceptable e.g. Green infrastructure with multiple benefits where there will be opportunities for Community groups to manage certain areas.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Larger development sites</td>
</tr>
<tr>
<td>Private Contributions</td>
<td>Voluntary from the private sector and local communities. Funding from beneficiaries of projects could make contributions from national funding viable. Contributions could be financial or “in kind” e.g. land, volunteer labour</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>All projects</td>
</tr>
<tr>
<td>Flood and Coastal Resilience Partnership Funding</td>
<td>Some funding allocated for major capital projects require contributions into resilience measures.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Measures which address flood risk to communities and businesses</td>
</tr>
<tr>
<td>European Convergence Funding 2007 - 2013</td>
<td>The Convergence programme for West Wales and the Valleys comprise funding from two separate European Structural Funds: the European Regional Development Fund (ERDF) and the European Social Fund (ESF).</td>
<td>£2 million</td>
<td>Isle of Anglesey County Council</td>
<td>Medium to large capital FRM projects</td>
</tr>
<tr>
<td>Local Fundraising</td>
<td>An important funding mechanism will come from local fundraising from the local communities and businesses that benefit from the proposed flood defence schemes.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Measures which address flood risk to communities and businesses</td>
</tr>
<tr>
<td>Riparian owners</td>
<td>Maintenance and repair of assets is normally the responsibility of riparian owners, awareness raising will assist in ensuring that assets are maintained; however, historic assets with uncertain ownership may require assistance in</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Measures which address flood risk to riparian owners</td>
</tr>
<tr>
<td>Source of Funding</td>
<td>Description</td>
<td>Indicative budget in 2012/2013</td>
<td>Administered By</td>
<td>To Fund</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------</td>
<td>-------------------------------</td>
<td>-----------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Community Infrastructure Levy (CIL)</strong></td>
<td>A local levy applied by the Planning Authority on developers. It allows local authorities to raise funds from new development in the area in order to pay for the impact that the development has on local infrastructure. The levy is based on the concept that almost all development has some impact on infrastructure and services, so it is fair that development should contribute towards the cost of maintaining or upgrading local infrastructure. Isle of Anglesey County Council has not yet implemented a CIL scheme. A bid for CIL would have to be made for flood management/drainage improvements against other competing council priorities.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>All measures outlined in the Strategy</td>
</tr>
<tr>
<td><strong>Business Rates Supplements</strong></td>
<td>Agreement from local businesses to raise rates for specified purposes.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Measures which address flood risk to businesses</td>
</tr>
<tr>
<td><strong>Collaborative schemes with other RMA’s</strong></td>
<td>There are opportunities for collaborative schemes with other RMAs, although the Water Authority has limited scope for allocating funding to schemes outside their capital programme which is usually set several years in advance; however early discussions and involvement may benefit all parties and the Community.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Key measures in the Strategy</td>
</tr>
<tr>
<td><strong>Interreg Programmes 2013 - 2020</strong></td>
<td>Interreg Wales Ireland Programme Interreg North West Europe Interreg Atlantic Area</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Revenue based projects</td>
</tr>
<tr>
<td></td>
<td>To work in partnership with other counties on initiatives involving research, monitoring, awareness raising, developing tools and strategies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9.2: IoACC’s possible future funding sources for Flood and Coastal Erosion Risk Management

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>Description</th>
<th>Indicative budget in 2012/2013</th>
<th>Administered By</th>
<th>To Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIFE Programme 2013 – 2020</strong></td>
<td>LIFE Environmental Policy and Governance. To bridge the gap between research and development results and widespread implementation. Information, communication and awareness raising campaigns.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council European Section</td>
<td>Initiatives that are looking to move from R&amp;D to implementation</td>
</tr>
<tr>
<td><strong>Structural Funds Programmes 2013 - 2020</strong></td>
<td>Structural Funds – potentially around climate change adaptation, risk prevention and management.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council European Section</td>
<td>Potentially medium to large capital projects</td>
</tr>
<tr>
<td><strong>Defra</strong></td>
<td>Other funding is being provided by Defra to help some individual homeowners to pay for the cost of installing individual property flood resilience measures in areas that are frequently flooded and do not benefit from community defences. The funding is being administered through the local authorities, reimbursed by the EA. Defra are also funding work to understand and manage the risk from surface water and ground and groundwater flooding.</td>
<td>Unknown</td>
<td>Isle of Anglesey County Council</td>
<td>Installing individual property flood resilience measures</td>
</tr>
</tbody>
</table>
10. Contribution to Wider Environmental Objectives

The main purpose of this report is to set out the Strategy for implementing flood risk management measures across Anglesey. However, there is an opportunity to derive significant benefit in the process, in respect to county and country-wide aspirations in the wider context of sustainability, environmental and social improvement. The aim is to provide better environments for residents and businesses as well as improving biodiversity and local habitats for wildlife.

Delivering multiple benefits will require working with partners to identify local priorities and opportunities. Where appropriate, and in line with the principles of the National Strategy, contributions that help to deliver these additional improvements could be sought from those partners that benefit. Higher levels of government funding may also be accessible when wider benefits are delivered as part of the Local Strategy.

The environmental objectives and measures that the Local Strategy will contribute to through the effective management of local flood risk are included below, some of which include national environmental objectives:

- To reduce the impact and consequences for individuals, communities, businesses and the environment from flooding and coastal erosion;
- To ensure that planning decisions are properly informed by flooding issues and the impact future planning may have on flood risk management and long term developments;
- Improve the capacity of existing drainage systems by targeted maintenance;
- Establish a SuDS Approval Body (SAB);
- The Anglesey SAB will embrace Welsh Government guidance on the encouragement, adoption and maintenance of SuDS. SuDS are an opportunity to ensure that amenity and biodiversity are considered with the same importance as managing volumes of water;
- Take a sustainable approach to flood risk management balancing economic, environmental and social benefits;
- Water Framework Directive targets (under Article 4.1) which are relevant to this Local Flood Risk Management Strategy include;
  - Ensure no deterioration of surface water and groundwater and the protection of all water bodies;
  - Achieve ‘good’ ecological status by 2015 for surface water and groundwater;
  - Reduction of pollution and hazardous substances in surface water and groundwater;
  - Reverse any upwards trends of pollutants in groundwater; and
  - Achieve standards and objectives set for protected areas.
- Increase approaches that utilise the natural environment;
- Enhance biodiversity and habitat creation within any future capital schemes. These schemes can also be used within urban areas to provide green spaces for amenity;
Anglesey Local Flood Risk Management Strategy

- Adaptation to climate change through local flood risk management measures, in order to build in community and operational resilience;
- Protect Sites of Special Scientific Interest (SSSIs) within Anglesey. All flood risk management authorities have a duty (under Section 28G of the Wildlife and Countryside Act 1981) to take reasonable steps to further the conservation and enhancement of SSSIs;
- Ensure no loss or degradation of habitat through flood risk management works to comply with the Biodiversity Action Plan (BAP). As a flood authority, Isle of Anglesey County Council has a duty (under Section 40(1) of the Natural Environment and Rural Communities Act 2006) to conserve biodiversity on and around the island;
- Ensure the environmental consequences of implementing the LFRMS are considered against technical, economic and social benefits; and
- The Strategy has undergone a thorough assessment against the Strategic Environmental Assessment (SEA) and the Habitats Regulations (HRA).

10.1 The Water Framework Directive

The Water Framework Directive (WFD) is the most substantial piece of EC water legislation to date and is designed to improve and integrate the way water bodies are managed throughout Europe. It came into force on 22 December 2000 and was transposed into UK law in 2003 via the Water Environment (Water Framework Directives) (England and Wales) Regulations 2003. Member States must aim to reach good chemical and ecological status in inland and coastal waters by 2015. It is designed to:

- Prevent deterioration in the classification status of aquatic ecosystems, protect them and improve the ecological condition of waters;
- Aim to achieve at least good status for all waters. Where this is not possible, good status should be achieved by 2021 or 2027;
- Promote sustainable use of water as a natural resource;
- Conserve habitats and species that depend directly on water;
- Progressively reduce or phase out releases of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
- Contribute to mitigating the effects of floods and droughts.

The Water Framework Directive establishes new and better ways of protecting and improving rivers, lakes, groundwater, transitional (where freshwater and sea water mix) and coastal waters. In order to achieve this, in 2009 the Environment Agency, Wales produced three River Basin Management Plans in Wales setting out measures to protect and improve the water environment. These are currently being implemented and will be revisited in 2015, 2021 and 2027, to ensure that the water body status does not deteriorate from standards set in 2009 as part of the initial River Basin Management Plans. It is important
that measures to manage local flood risk do not cause deterioration of water bodies and should consider opportunities to improve water bodies in conjunction with local flood risk management.

10.2 Sustainable Development

10.2.1 One Wales: One Planet

The Welsh Government has a duty to have a ‘Scheme for Sustainable Development’, setting out how it will promote sustainable development. The current Scheme, One Wales: One Planet\(^{31}\) was launched in May 2009 and defines sustainable development as:

“Enhancing the economic, social and environmental wellbeing of people and communities, achieving a better quality of life for our own and future generations in ways which:

1. Promote social justice and equality of opportunity; and
2. Enhance the natural and cultural environment and respect its limits - using only our fair share of the earth’s resources and sustaining our cultural legacy.”

‘One Wales One Planet’ says that if every country in the world used as much resources as our own small country, we would need three planets worth of trees, of crops, of oil and so on to survive, and this is increasing. Obviously we can’t go on like this and although we are making progress in Wales, there is still more to do.

IoACC has always been committed to leading the way in protecting our environment. Providing weekly recycling collections and reducing landfill; improving the coastal defences to protect communities and natural habitats from the impacts of climate change; and improving the quality of our parks, green spaces and beaches are just some of the things we are doing to improve the quality of our environment.

10.2.2 Guidance to Risk Management Authorities

As required under the Flood and Water Management Act, Welsh Government has published guidance to explain how sustainable development should be applied to flood risk management; ‘Sustainable Development: Guidance to Risk Management Authorities Section 27 – Sustainable Development’. The guidance states that sustainable development is highly applicable to the Flood and Coastal Erosion Risk Management and requires an approach which delivers four objectives:

- Maximises the long-term economic, social and environmental wellbeing of people and communities in Wales, whilst living within environmental limits;
- Safeguards the continued provision of ecosystem services from our natural environment;
- Avoids exposing current and future generation to increasing risk; and
- Improves the resilience of communities, the economy and the natural, historic, and social environment to current and future risk.

11. Reviewing the Strategy

The Strategy will provide the framework for IoACC’s delivery of its flood risk management responsibilities and aspirations. A project board has been set up consisting of relevant heads of service and councillors to approve the Strategy in order for it to be adopted as a Council wide Strategy. Highways and Waste Management Department will review the Strategy on a regular basis with assistance from other departments to monitor progression on the implementation of the measures. The departments involved will include but not exclusively; Emergency Planning, Environment, Risk Management, Planning, Legal, Social Services, Education, and Press.

It is a “living document” which will develop as new information, expertise and resources influence the delivery of the measures outlined in the Strategy. There will also be substantial changes in the next few years, with changes to the planning system and the requirements for sustainable drainage; in the provision of flood insurance; in the funding and design of flood prevention schemes; and with improvements in our knowledge of where the greatest flood risk is. IoACC will take account of these changes and consider the implications in respect to the Strategy and make annual on-going adjustments to the Strategy as necessary.

The Strategy has been developed to deliver a short to medium term improvement plan to establish a sound evidence and knowledge base to develop a longer-term investment programme for FRM measures across the region. It is anticipated that the Strategy will become more focussed on the delivery of an affordable and funded capital programme of FRM works in the longer term.

It is proposed that a formal review of the Local Strategy should take place in 2017 following the review of the National Strategy in 2016, and to coincide with the review of the preliminary flood risk assessment as required by the Flood Risk Regulations. The Strategy should then continue to be reviewed every six years in conjunction with the review of the PFRA, unless circumstances dictate a more frequent review.

<table>
<thead>
<tr>
<th>Stages in Flood Risk Management</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete first Annual Action Plan to implement the strategy</td>
<td>Summer 2013 &amp; each year thereafter</td>
</tr>
<tr>
<td>Publication of Flood Hazard and Risk Maps</td>
<td>Every six years where appropriate</td>
</tr>
<tr>
<td>Publication of Flood Risk Management Plans and completion of the first cycle of the Flood Risk Regulations</td>
<td>Every six years where appropriate</td>
</tr>
<tr>
<td>Review and update of the Anglesey Flood Risk Assessment (PFRA)</td>
<td>Spring 2017 &amp; each six years thereafter</td>
</tr>
<tr>
<td>Complete first formal review of the Anglesey LFRMS</td>
<td>Spring / summer 2017 &amp; each six years thereafter (or where appropriate)</td>
</tr>
</tbody>
</table>

Table 11.1: Timetable for IoACC for implementing the LFRMS review
## Appendix A

### Risk Management Authorities in Anglesey

<table>
<thead>
<tr>
<th>Environment Agency Wales</th>
<th></th>
</tr>
</thead>
</table>
| **Address**              | Head Office  
Tŷ Cambria House  
29 Newport Road  
Cardiff  
CF24 0TP  
Northern Area Office  
Ffordd Penlan  
Parc Menai  
Bangor  
Gwynedd  
LL57 4DE |
| **Telephone**            | 08708 506 506 |
| **e-mail**               | enquiries@environment-agency.gov.uk |
| **Website**              | [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk) |
| **Floodline - Phone Number** | 0845 988 1188 (24 hour service) |
| **Type Talk**            | 0845 602 6340 |

<table>
<thead>
<tr>
<th>Isle of Anglesey County Council</th>
<th></th>
</tr>
</thead>
</table>
| **Address**                     | Council Offices  
Llangefni  
Anglesey  
LL77 7TW |
| **Telephone**                   | 01248 750057 |
| **Website**                     | [www.anglesey.gov.uk](http://www.anglesey.gov.uk) |

<table>
<thead>
<tr>
<th>Dŵr Cymru-Welsh Water</th>
<th></th>
</tr>
</thead>
</table>
| **Address**           | Pentwyn Road  
Nelson  
Treharris  
CF46 6LY |
<p>| <strong>Telephone</strong>         | 01443 452300 |
| <strong>Customer Service</strong>  | 0800 052 0140 |
| <strong>Website</strong>           | <a href="http://www.dwrcymru.co.uk">www.dwrcymru.co.uk</a> |</p>
<table>
<thead>
<tr>
<th><strong>North and Mid Wales Trunk Road Agency</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Address</strong></td>
</tr>
<tr>
<td>Unit 7</td>
</tr>
<tr>
<td>Llys Onnen</td>
</tr>
<tr>
<td>Ffordd y Llyn</td>
</tr>
<tr>
<td>Parc Menai</td>
</tr>
<tr>
<td>Bangor</td>
</tr>
<tr>
<td>Gwynedd</td>
</tr>
<tr>
<td>LL57 4DF</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
</tr>
<tr>
<td>01286 685186 or 01286 685180</td>
</tr>
<tr>
<td><strong>Fax</strong></td>
</tr>
<tr>
<td>01248 674975</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Welsh Government</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Address</strong></td>
</tr>
<tr>
<td>Sustainable Places</td>
</tr>
<tr>
<td>Welsh Government</td>
</tr>
<tr>
<td>Cathay’s Park</td>
</tr>
<tr>
<td>Cardiff</td>
</tr>
<tr>
<td>CF10 3NQ</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
</tr>
<tr>
<td>(Welsh) 0300 0604400 or 0845 010 4400</td>
</tr>
<tr>
<td>(English) 0300 0603300 or 0845 010 3300</td>
</tr>
<tr>
<td>(International Enquiries) (+44) 1443 845500</td>
</tr>
<tr>
<td><strong>e-mail</strong></td>
</tr>
<tr>
<td><a href="mailto:FloodCoastalRisk@wales.gsi.gov.uk">FloodCoastalRisk@wales.gsi.gov.uk</a></td>
</tr>
<tr>
<td><strong>Website</strong></td>
</tr>
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<td><a href="http://www.wales.gov.uk">www.wales.gov.uk</a></td>
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</table>